

บรรณานุกรม

แมนมาศ ขวลิต และ คีรินทร ช่วงโชติ. วิชาบรรณารักษศาสตร์ พระนคร.

ครุฑ, 2516.

สุทธิลักษณ์ อัมพวันวงศ์. วิวัฒนาการห้องสมุด และบรรณารักษศาสตร์ในประเทศไทย

("เอกสารบรรณารักษศาสตร์ เล่ม 4") พระนคร: แผนก

บรรณารักษศาสตร์ คณะอักษรศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย, 2510.

Chapman, Edward A., Pierre, Paul L. ST. and Lubans, John Jr. Library System Analysis Guidelines, New York: John Wiley & Sons, Inc., 1970.

Fry, George and Associates. Study of Circulation Control System, Chicago: American Library Association, 1961.

Forkner, Irving and Mcleod, Raymond Jr., Computerized Business Systems. New York: John Wiley & Sons, Inc., 1973.

Foskett, A.C. The Subject Approach to Information London: Clive Bingley, 1969.

Hayes, Robert M., and Becker Joseph. Handbook of data processing for Libraries. New York: John Wiley & Sons, Inc., 1970.

Henley, J.P. Computer-based Library and Information Systems. London: Macdonald, 1972.

Jordain, Philip B. Condensed Computer Encyclophedia. St. Louis: McGraw-Hill Book Company, 1969.

- Kimber, Richard T. Automation in Libraries. London: Pergamon Press, 1968.
- Lefkovitz, David. File Structure for On-line Systems. New York, Washington: Spartan Books, 1969.
- Meek, C.L. Glossary of Computing Terminology. New York: CCM Information Corporation, 1972.
- Rao, Paladugu V., and Szerenyi, Joseph V. "Booth library On-line Circulation Aystem (BLOC)". Library Automation. Vol 4 No. 2 (June, 1971).
- Salton, Gerard. Automatic Information Organization and Retrieval. New York: McGraw-Hill Book Company, 1968.
- Schultheiss, Louise A., Culbertson, Don S., and Heilizer, Edward M. Advance Data Processing in the University Library. New York: The Scarecrow Press, Inc., 1962.
- Sipl, Charles J. Computer Dictionary and Handbook. England: W. Foulsham & Co. Ltd. 1967.
- Smith, Gloria L. and Meyer Robert S. Library use of Computers. New York: Special libraries Association, 1970.
- Swihart Stanley J. and Hefley, Beryl F. Computer Systems in the Library. Los Angeles Calif: Melville Publishing Company, 1973.

ภาคผนวก

## หมวด ก

โปรแกรมที่ 1. การสร้าง File ทะเบียนสมาชิกห้องสมุดโดยอ่าน  
ข้อมูลจาก Card File แล้วเก็บไว้ในเทปแม่เหล็ก

000010 IDENTIFICATION DIVISION.  
000020 PROGRAM-ID. LIBRARY1.  
000030 AUTHOR. MR WARAWUDT KRUSIN.  
000040 ENVIRONMENT DIVISION.  
000050 CONFIGURATION SECTION.  
000060 SOURCE-COMPUTER. NEAC-2200.  
000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL.  
000080 INPUT-OUTPUT SECTION.  
000090 FILE-CONTROL.  
000100       SELECT CARDA ASSIGN TO CARD-READER E.  
000110       SELECT FILEA ASSIGN TO TAPE-UNIT HC.  
000120 DATA DIVISION.  
000130 FILE SECTION.  
000140 FD CARDA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
000150       IS "LIBB" DATA RECORD IS CARD-REC.  
000160 01 CARD-REC PICTURE X(80).  
000170 FD FILEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
000180       IS "LIBB" DATA RECORD IS MEMBER.  
000190 01 MEMBER.  
000200       02 MEMBER-NO PICTURE X(5).  
000210       02 MEMBER-NAME PICTURE X(35).  
000220       02 MEMBER-ADDR PICTURE X(30).  
000230       02 MEMBER-STA PICTURE X.  
000240       02 MEMBER-FAC PICTURE XX.  
000250       02 FILLER PICTURE X.  
000260       02 MEMBER-EXP.  
000270       03 MONTH PICTURE XX.  
000280       03 DATE PICTURE XX.  
000290       03 YEAR PICTURE XX.  
000300 PROCEDURE DIVISION.  
000310 BEGIN. OPEN INPUT CARDA OUTPUT FILEA MOVE SPACE TO MEMBER.  
000320 AGAIN. READ CARDA AT END GO TO E-O-J.  
000330       MOVE CARD-REC TO MEMBER.  
000340       WRITE MEMBER.  
000350       GO TO AGAIN.  
000360 E-O-J. MOVE "THIS IS THE END OF FILE-MEMBER" TO MEMBER  
000370       WRITE MEMBER.  
000380       CLOSE CARDA FILEA STOP RUN.  
999999 END COBOL

ผนวก ข .

โปรแกรมที่ 2. การสร้าง Master File ของหนังสือที่ใช้ในระบบ  
จ่ายรับโดยเก็บไว้ในเทปแม่เหล็ก

```

000010 IDENTIFICATION DIVISION.
000020 PROGRAM-ID. LIBRARY2.
000030 AUTHOR. MR WARAWUDT KRUSINTH.
000040 ENVIRONMENT DIVISION.
000050 CONFIGURATION SECTION.
000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.
000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL
000080 MEMORY SIZE 24576 CHARACTERS.
000090 INPUT-OUTPUT SECTION.
000100 FILE-CONTROL.
000110     SELECT CARDA ASSIGN TO CARD-READER E.
000120     SELECT TAPEA ASSIGN TO TAPE-UNIT HC.
000130 DATA DIVISION.
000140 FILE SECTION.
000150 FD CARDA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION
000160     IS "LIBA" DATA RECORD IS DATA-A.
000170 01 DATA-A.
000180     02 CONTENT PICTURE X(79).
000190     02 KODE PICTURE X.
000200 FD TAPEA LABEL RECORD IS STANDARD
000210     VALUE OF IDENTIFICATION IS "LIBC"
000220     DATA RECORD IS FILE-CREATION.
000230 01 FILE-CREATION PICTURE X(4090).
000240 WORKING-STORAGE SECTION.
000250 77 X PICTURE 99 VALUE ZERO.
000260 77 Y PICTURE 99 VALUE ZERO.
000270 77 Z PICTURE 99 VALUE ZERO.
000280 01 REST.
000290     02 AZ PICTURE X(80).
000300     02 CZ PICTURE X(60).
000310     02 FZ PICTURE X(75).
000320     02 DZZ OCCURS 25 TIMES PICTURE X(155).
000330 01 IMA.
000340     02 B PICTURE 9(5).
000350     02 C PICTURE X(60).
000360     02 D PICTURE X(15).
000370 01 IMB.
000380     02 E PICTURE 9(5).
000390     02 F PICTURE X(75).
000400 01 IMC.
000410     02 G PICTURE 9(5).
000420     02 H PICTURE X(75).
000430 01 IMD.
000440     02 HZ PICTURE X(75).
000450     02 IZ PICTURE X(80).
000460 PROCEDURE DIVISION.
000470 BEGIN. OPEN INPUT CARDA OUTPUT TAPEA.
000480     MOVE SPACE TO FILE-CREATION.
000490 READA. READ CARDA AT END GO TO FIN.
000500 READC. MOVE DATA-A TO AZ.
000510     READ CARDA AT END GO TO FIN.
000520     MOVE DATA-A TO IMA MOVE C TO CZ.
000530     READ CARDA AT END GO TO FIN.
000540     MOVE DATA-A TO IMB MOVE F TO FZ.
000550 READB. READ CARDA AT END GO TO FIN.
000560     ADD 1 TO Y.

```

```
000570      IF KODE = "A" GO TO CLEAN.
000580      ADD 1 TO X.
000590      IF X = 1 MOVE DATA-A TO IMC MOVE H TO HZ
000600      SUBTRACT 1 FROM Y OTHERWISE
000610      MOVE DATA-A TO IZ MOVE IMD TO DZZ (Y)
000620      MOVE ZERO TO X.
000630      GO TO READB.
000640 CLEAN.  IF Y = 26 GO TO WRITE-REC.
000650      PERFORM ADDING VARYING Z FROM Y BY 1 UNTIL Z = 25
000660      GO TO ADDING.
000670 ADDING. MOVE ALL "Y" TO DZZ (Z).
000680 WRITE-REC. MOVE ZERO TO X, Y.
000690      MOVE REST TO FILE-CREATION WRITE FILE-CREATION.
000700      GO TO READC.
000710 FIN.   CLOSE CARDA TAPEA STOP RUN.
999999 END COBOL
```



ผนวก ค.

โปรแกรมที่ 3. การพิมพ์รายละเอียดเกี่ยวกับสมาชิกห้องสมุดจาก  
File เทปแม่เหล็ก

000010 IDENTIFICATION DIVISION.  
 000020 PROGRAM-ID. MEMBERS.  
 000030 AUTHORS. MR.WARAWUDJ KRUASIN.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL.  
 000080 SPECIAL-NAMES. PAGE IS TOP-PAGE.  
 000090 INPUT-OUTPUT SECTION.  
 000100 FILE-CONTROL.  
 000110 SELECT FILEA ASSIGN TO TAPE-UNIT DC.  
 000120 SELECT PRINT-FILE ASSIGN TO PRINTER B.  
 000130 DATA DIVISION.  
 000140 FILE SECTION.  
 000150 FD FILEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION IS  
 000160 "LIBB" DATA RECORD IS MEMBER.  
 000170 01 MEMBER.  
 000180 02 MEMBER-NO PICTURE X(5).  
 000190 02 MEMBER-NAME PICTURE X(35).  
 000200 02 MEMBER-ADDR PICTURE X(30).  
 000210 02 MEMBER-STA PICTURE X.  
 000220 02 MEMBER-FAC PICTURE 99.  
 000230 02 FILLER PICTURE X.  
 000240 02 MEMBER-EXP.  
 000250 03 DATE PICTURE 99.  
 000260 03 MONTH PICTURE 99.  
 000270 03 YEAR PICTURE XX.  
 000280 FD PRINT-FILE LABEL RECORD IS OMITTED DATA RECORD IS PRINT-RE  
 000290-  
 000300 01 PRINT-REC PICTURE X(132).  
 000310 WORKING-STORAGE SECTION.  
 000320 77 I PICTURE 99 VALUE ZERO.  
 000330 77 J PICTURE 99 VALUE ZERO.  
 000340 77 N PICTURE 99 VALUE ZERO.  
 000350 01 MONTH-TABLE.  
 000360 02 FILLER PICTURE X(4) VALUE "JAN."  
 000370 02 FILLER PICTURE X(4) VALUE "FEB."  
 000380 02 FILLER PICTURE X(4) VALUE "MAR."  
 000390 02 FILLER PICTURE X(4) VALUE "APR."  
 000400 02 FILLER PICTURE X(4) VALUE "MAY"  
 000410 02 FILLER PICTURE X(4) VALUE "JUN."  
 000420 02 FILLER PICTURE X(4) VALUE "JUL."  
 000430 02 FILLER PICTURE X(4) VALUE "AUG."  
 000440 02 FILLER PICTURE X(4) VALUE "SEP."  
 000450 02 FILLER PICTURE X(4) VALUE "OCT."  
 000460 02 FILLER PICTURE X(4) VALUE "NOV."  
 000470 02 FILLER PICTURE X(4) VALUE "DEC."  
 000480 01 MONTH-TAB REDEFINES MONTH-TABLE.  
 000490 02 MONTHN OCCURS 12 TIMES PICTURE X(4).  
 000500 01 FAC-TABLE.  
 000510 02 FILLER PICTURE X(18) VALUE "COMFRCE-ACCTNC"  
 000520 02 FILLER PICTURE X(18) VALUE "MEDICAL"  
 000530 02 FILLER PICTURE X(18) VALUE "POLITICAL SCIENCE"  
 000540 02 FILLER PICTURE X(18) VALUE "ECONOMICS"  
 000550 02 FILLER PICTURE X(18) VALUE "EDUCATION"  
 000560 02 FILLER PICTURE X(18) VALUE "ENGINEERING"



```

000570      02  FILLER  PICTURE X(18) VALUE "ARCHITECTURE      ".
000580      02  FILLER  PICTURE X(18) VALUE "SCIENCE          ".
000590      02  FILLER  PICTURE X(18) VALUE "VETERINARY SCIENCE ".
000600      02  FILLER  PICTURE X(18) VALUE "COMMUNCTN PUB RLTN".
000610      02  FILLER  PICTURE X(18) VALUE "ARTS              ".
000620      02  FILLER  PICTURE X(18) VALUE "LAWS               ".
000630      02  FILLER  PICTURE X(18) VALUE "PHAMACY            ".
000640      02  FILLER  PICTURE X(18) VALUE "DEMOGRAPHY         ".
000650      02  FILLER  PICTURE X(18) VALUE "GRADUATED SCHOOL  ".
000660 01  FACULTY-TABLE REDEFINES FAC-TABLE.
000670      02  FACULTYN OCCURS 15 TIMES PICTURE X(18).
000680 01  HEAD-1.
000690      02  FILLER  PICTURE X(45) VALUE "C O M P U T E R   S C I E N C E
000700-      "   L I B R A R Y".
000710 01  HEAD-2.
000720      02  FILLER  PICTURE X(51) VALUE "THE LIST OF THE MEMBERS OF C
000730-      "OMPUTER SCIENCE LIBRARY".
000740 01  HEAD-4.
000750      02  FILLER  PICTURE X(5) VALUE SPACE.
000760      02  MEM-NO  PICTURE X(5).
000770      02  FILLER  PICTURE X(3) VALUE SPACE.
000780      02  MEM-NA  PICTURE X(35).
000790      02  FILLER  PICTURE X(3) VALUE SPACE.
000800      02  MEM-AD  PICTURE X(30).
000810      02  FILLER  PICTURE X(3) VALUE SPACE.
000820      02  MEM-STA PICTURE X.
000830      02  FILLER  PICTURE X(5) VALUE SPACES.
000840      02  FACULTY PICTURE X(18).
000850      02  FILLER  PICTURE X(5) VALUE SPACE.
000860      02  DAYA  PICTURE Z9.
000870      02  FILLER  PICTURE X VALUE SPACE.
000880      02  MONTHA PICTURE X(4).
000890      02  YEARA  PICTURE X(4).
000900 01  HEAD-6.
000910      02  FILLER  PICTURE X(5) VALUE SPACES.
000920      02  FILLER  PICTURE X(6) VALUE "NUMBER".
000930      02  FILLER  PICTURE X(13) VALUE SPACE.
000940      02  FILLER  PICTURE X(12) VALUE "MEMBER  NAME".
000950      02  FILLER  PICTURE X(23) VALUE SPACE.
000960      02  FILLER  PICTURE X(15) VALUE "MEMBER  ADDRESS".
000970      02  FILLER  PICTURE X(10) VALUE SPACES.
000980      02  FILLER  PICTURE X(3) VALUE "STT".
000990      02  FILLER  PICTURE X(7) VALUE SPACES.
001000      02  FILLER  PICTURE X(7) VALUE "FACULTY".
001010      02  FILLER  PICTURE X(12) VALUE SPACES.
001020      02  FILLER  PICTURE X(12) VALUE "EXPIRE  DATE".
001030  PROCEDURE DIVISION.
001040  BEGIN.
001050  OPEN INPUT FILEA OUTPUT PRINT-FILE.
001060      MOVE SPACE TO PRINT-REC.
001070  MA. WRITE PRINT-REC BEFORE TOP-PAGE.
001080      MOVE HEAD-1 TO PRINT-REC WRITE PRINT-REC BEFORE 3 LINES.
001090      MOVE HEAD-2 TO PRINT-REC WRITE PRINT-REC BEFORE 2 LINE.
001100      MOVE HEAD-6 TO PRINT-REC WRITE PRINT-REC BEFORE 2 LINES.
001110  READA.
001120      READ FILEA AT END GO TO E-0-J.
001130      MOVE SPACES TO PRINT-REC.
001140      MOVE MEMBFR-NO TO MEM-NO.
001150      MOVE MEMBER-NAME TO MEM-NA.
001160      MOVE MEMBER-ADDR TO MEM-AD.
001170      MOVE MEMBER-STA TO MEM-STA.

```

```
001180 COMPUTE J = MEMBER-FAC.
001190 MOVE FACULTYN (J) TO FACULTY.
001200 COMPUTE I = MONTH.
001210 MOVE MONTHN (I) TO MONTHA.
001220 MOVE DATE TO DAYA.
001230 MOVE YEAR TO YEARA.
001240 MOVE HEAD-4 TO PRINT-REC.
001250 WRITE PRINT-REC BEFORE 2 LINE.
001260 ADD 1 TO N.
001270 IF N = 25 GO TO MA.
001280 GO TO READA.
001290 E-O-J.
001300 CLOSE FILEA PRINT-FILE.
001310 STOP RUN.
999999 END COBOL
```

ผนวก ง.

โปรแกรมที่ 4, การพิมพ์รายละเอียดเกี่ยวกับหนังสือจากfile  
เทปแม่เหล็ก

000010 IDENTIFICATION DIVISION.  
 000020 PROGRAM-ID. BOOK-LIST.  
 000030 AUTHOR. WARAWUDJ KRUSIN.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL.  
 000080 SPECIAL-NAMES. PAGE IS TOP-PAGE.  
 000090 INPUT-OUTPUT SECTION.  
 000100 FILE-CONTROL.  
 000110       SELECT TAPEA ASSIGN TO TAPE-UNIT DC.  
 000120       SELECT PRINTA ASSIGN TO PRINTER B.  
 000130 DATA DIVISION.  
 000140 FILE SECTION.  
 000150 FD TAPEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000160       IS "LIBC" DATA RECORD IS RECORD-CONTENT.  
 000170 01 RECORD-CONTENT.  
 000180       02 ACCESSION PICTURE 9(5).  
 000190       02 TITLE PICTURE X(60).  
 000200       02 FILLER PICTURE X(20).  
 000210       02 WRITER.  
 000220           03 WRITER-1 PICTURE X(20).  
 000230           03 WRITER-2 PICTURE X(20).  
 000240           03 WRITER-3 PICTURE X(20).  
 000250       02 FILLER PICTURE X(20).  
 000260       02 CLASSIFICATION.  
 000270           03 CALL-NUMBER.  
 000280           04 FRONT PICTURE 999.  
 000290           04 BEHIND PICTURE 9(8).  
 000300           03 CUTTER PICTURE X(5).  
 000310           03 WORKING-AREA PICTURE X(8).  
 000320       02 EDITION PICTURE 99.  
 000330       02 YEAR PICTURE 9(4).  
 000340       02 COPIES PICTURE XX.  
 000350       02 PAGE-NO PICTURE 999.  
 000360       02 PUBLICATION PICTURE X(40).  
 000370       02 BOOK-CONTENT OCCURS 25 TIMES.  
 000380           03 BOOK-CODE PICTURE 9(7).  
 000390           03 CONTENT PICTURE X(67).  
 000400           03 FROM-PAGE PICTURE 999.  
 000410           03 TO-PAGE PICTURE 999.  
 000420 FD PRINTA LABEL RECORD IS OMITTED DATA RECORD IS PRT.  
 000430 01 PRT PICTURE X(132).  
 000440 WORKING-STORAGE SECTION.  
 000450 77 I PICTURE 99.  
 000460 77 N PICTURE 99.  
 000470 01 HEAD-1.  
 000480       02 FILLER PICTURE X(45) VALUE "C O M P U T E R S C I E N C E  
 000490       " L I B R A R Y".  
 000500 01 HEAD-2.  
 000510       02 FILLER PICTURE X(10) VALUE SPACES.  
 000520       02 FILLER PICTURE X(16) VALUE "BOOK MASTER FILE".  
 000530 01 HEAD-3.  
 000540       02 FILLER PICTURE X(10) VALUE SPACES.  
 000550       02 FILLER PICTURE X(11) VALUE "CALL NUMBER".  
 000560       02 FILLER PICTURE X(5) VALUE SPACES.

76

```

000570      02 FILLER PICTURE X(7) VALUE "TITLE :".
000580      02 TIL PICTURE X(60).
000590      02 FILLER PICTURE X(16) VALUE "ACCESSION NUMBER".
000600      02 FILLER PICTURE XX VALUE SPACES.
000610      02 AC-N PICTURE 9(5).
000620 01 HEAD-4.
000630      02 FILLER PICTURE X(10) VALUE SPACES.
000640      02 FRO PICTURE 999.
000650      02 FILLER PICTURE X VALUE ", ".
000660      02 BED PICTURE 9(8).
000670      02 FILLER PICTURE X(4) VALUE SPACES.
000680      02 FILLER PICTURE X(7) VALUE "BY   ".
000690      02 AUTHR1 PICTURE X(20).
000700 01 HEAD-5.
000710      02 FILLER PICTURE X(10) VALUE SPACES.
000720      02 CUT PICTURE X(5).
000730      02 FILLER PICTURE X(3) VALUE SPACES.
000740      02 FILLER PICTURE X VALUE "C".
000750      02 COP PICTURE XX.
000760      02 FILLER PICTURE X(12) VALUE SPACES.
000770      02 AUTHR2 PICTURE X(20).
000780      02 FILLER PICTURE X(40) VALUE SPACES.
000790      02 FILLER PICTURE X(15) VALUE "NUMBER OF PAGES".
000800      02 FILLER PICTURE XX VALUE SPACES.
000810      02 PAG PICTURE 999.
000820 01 HEAD-6.
000830      02 FILLER PICTURE X(26) VALUE SPACES.
000840      02 FILLER PICTURE X(7) VALUE "AND   ".
000850      02 AUTHR3 PICTURE X(20).
000860 01 HEAD-7.
000870      02 FILLER PICTURE X(23) VALUE SPACES.
000880      02 EDTN PICTURE X(15).
000890      02 FILLER PICTURE X(5) VALUE SPACES.
000900      02 FILLER PICTURE X(12) VALUE "COPY RIGHT  ".
000910      02 YR PICTURE 9(4).
000920      02 FILLER PICTURE X(5) VALUE SPACES.
000930      02 FILLER PICTURE X(4) VALUE "BY   ".
000940      02 PUB PICTURE X(40).
000950 01 TABLE-1.
000960      02 FILLER PICTURE X(15) VALUE "FIRST EDITION  ".
000970      02 FILLER PICTURE X(15) VALUE "SECOND EDITION  ".
000980      02 FILLER PICTURE X(15) VALUE "THIRD EDITION  ".
000990      02 FILLER PICTURE X(15) VALUE "FOURTH EDITION  ".
001000      02 FILLER PICTURE X(15) VALUE "FIFTH EDITION  ".
001010      02 FILLER PICTURE X(15) VALUE "SIXTH EDITION  ".
001020      02 FILLER PICTURE X(15) VALUE "SEVENTH EDITION  ".
001030      02 FILLER PICTURE X(15) VALUE "EIGHT EDITION  ".
001040      02 FILLER PICTURE X(15) VALUE "NINTH EDITION  ".
001050      02 FILLER PICTURE X(15) VALUE "TENTH EDITION  ".
001060 01 ED-TABLE REDEFINES TABLE-1.
001070      02 ED PICTURE X(15) OCCURS 15 TIMES.
001080 PROCEDURE DIVISION.
001090 BEGIN.
001100      OPEN INPUT TAPEA OUTPUT PRINTA.
001110 A.  MOVE SPACES TO PRT WRITE PRT BEFORE TOP-PAGE.
001120      MOVE ZERO TO I.
001130      MOVE HEAD-1 TO PRT WRITE PRT BEFORE 2 LINES.
001140      MOVE HEAD-2 TO PRT WRITE PRT BEFORE 3 LINES.
001150 P-1. READ TAPEA AT END CLOSE TAPEA PRINTA STOP RUN.
001160      MOVE SPACES TO PRT.
001170      MOVE TITLE TO TIL.

```

```
001180     MOVE ACCESSION TO AC-N.
001190     MOVE HEAD-3 TO PRT WRITE PRT.
001200     MOVE FRONT TO FRO MOVE BEHIND TO BED.
001210     MOVE WRITER-1 TO AUTHR1.
001220     MOVE HEAD-4 TO PRT WRITE PRT.
001230     MOVE CUTTER TO CUT MOVE COPIES TO COP.
001240     MOVE PAGE-NO TO PAG.
001250     IF WRITER-2 = SPACES MOVE SPACES TO AUTHR2
001260     MOVE HEAD-5 TO PRT WRITE PRT GO TO P-2.
001270     MOVE WRITER-2 TO AUTHR2 MOVE HEAD-5 TO PRT WRITE PRT
001280     IF WRITER-3 = SPACES GO TO P-2.
001290     PERFORM P-3.
001300 P-2.
001310     COMPUTE N = EDITION.
001320     MOVE ED (N) TO EDTN.
001330     MOVE YEAR TO YR.
001340     MOVE PUBLICATION TO PUB.
001350     MOVE HEAD-7 TO PRT WRITE PRT BEFORE 2 LINES.
001360     ADD 1 TO I.
001370     IF I = 10 GO TO A.
001380     GO TO P-1.
001390 P-3. MOVE WRITER-3 TO AUTHR3.
001400     MOVE HEAD-6 TO PRT WRITE PRT.
999999 END COBOL
```



ผนวก จ .

โปรแกรมที่ 5. การจัดทำรายชื่อหนังสือที่ถูกยืม, รายชื่อผู้ยืมและ  
จำนวนจำนวนวันของหนังสือที่เกินกำหนด

000010 IDENTIFICATION DIVISION.  
 000020 PROGRAM-ID. CIRCULATION.  
 000030 AUTHOR. MR WARAWUDJ KRUSIN.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL.  
 000080 SPECIAL-NAMES. PAGE IS TOP-PAGE.  
 000090 INPUT-OUTPUT SECTION.  
 000100 FILE-CONTROL.  
 000110       SELECT TAPEA ASSIGN TO TAPE-UNIT DC.  
 000120       SELECT FILEA ASSIGN TO TAPE-UNIT DA.  
 000130       SELECT FILEB ASSIGN TO CARD-READER E.  
 000140       SELECT PRINTA ASSIGN TO PRINTER B.  
 000150       SELECT PRINTB ASSIGN TO TAPE-UNIT DD.  
 000160 DATA DIVISION.  
 000170 FILE SECTION.  
 000180 FD TAPEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000190       IS "LIBC" DATA RECORD IS RECORD-CONTENT.  
 000200 01 RECORD-CONTENT.  
 000210       02 ACCESSION PICTURE 9(5).  
 000220       02 TITLE PICTURE X(60).  
 000230       02 FILLER PICTURE X(20).  
 000240       02 WRITER.  
 000250           03 WRITER-1 PICTURE X(20).  
 000260           03 WRITER-2 PICTURE X(20).  
 000270           03 WRITER-3 PICTURE X(20).  
 000280       02 FILLER PICTURE X(20).  
 000290       02 CLASSIFICATION.  
 000300           03 CALL-NUMBER.  
 000310           04 FRONT PICTURE 999.  
 000320           04 BEHIND PICTURE 9(8).  
 000330           03 CUTTER PICTURE X(5).  
 000340           03 WORKING-AREA PICTURE X(8).  
 000350       02 EDITION PICTURE 99.  
 000360       02 YEAR PICTURE 9(4).  
 000370       02 COPIES PICTURE XX.  
 000380       02 PAGE-NO PICTURE 999.  
 000390       02 PUBLICATION PICTURE X(40).  
 000400       02 BOOK-CONTENT OCCURS 25 TIMES.  
 000410           03 BOOK-CODE PICTURE 9(7).  
 000420           03 CONTENT PICTURE X(67).  
 000430           03 FROM-PAGE PICTURE 999.  
 000440           03 TO-PAGE PICTURE 999.  
 000450 FD FILEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000460       "LIBB" DATA RECORD IS MEMBER.  
 000470 01 MEMBER.  
 000480       02 MEMBER-NO PICTURE X(5).  
 000490       02 MEMBER-NAME PICTURE X(35).  
 000500       02 MEMBER-ADDR PICTURE X(30).  
 000510       02 MEMBER-STA PICTURE X.  
 000520       02 MEMBER-FAC PICTURE 99.  
 000530       02 FILLER PICTURE X.  
 000540       02 MEMBER-EXP.  
 000550           03 DATE PICTURE 99.  
 000560           03 MONTH PICTURE 99.

000570 03 YEAR PICTURE XX. 80

000580 FD PRINTA LABEL RECORD IS OMITTED DATA RECORD IS PRT.

000590 01 PRT PICTURE X(132).

000600 FD FILEB LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION

000610 IS "LIBD" DATA RECORD IS CARD-D.

000620 01 CARD-D.

000630 02 ACC-NO PICTURE 9(5).

000640 02 MEM-NO PICTURE 9(5).

000650 02 DATA-DUE.

000660 03 DA PICTURE 99.

000670 03 MO PICTURE 99.

000680 03 YE PICTURE 99.

000690 FD PRINTB LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION

000700 IS "LIBF"

000710 DATA RECORD IS TB.

000720 01 TB PICTURE X(21).

000730 WORKING-STORAGE SECTION.

000740 77 I PICTURE 99.

000750 77 DE PICTURE 99.

000760 77 ME PICTURE 99.

000770 77 YA PICTURE 99.

000780 77 DP PICTURE 999.

000790 77 DN PICTURE 99.

000800 77 MN PICTURE 99.

000810 77 YN PICTURE 99.

000820 77 A PICTURE 99.

000830 77 B PICTURE 999.

000840 01 DATE-CHECK.

000850 02 DY PICTURE 99.

000860 02 MH PICTURE 99.

000870 02 YR PICTURE 99.

000880 01 HEAD-1.

000890 02 FILLER PICTURE X(45) VALUE "C O M P U T E R S C I E N

000900- " L I B R A R Y".

000910 01 HEAD-2.

000920 02 FILLER PICTURE X(57) VALUE "CIRCULATION TRANSACTION REG

000930- "ER AND AGED OVERDUE LISTING".

000940 02 FILLER PICTURE X(16) VALUE SPACES.

000950 02 FILLER PICTURE X(6) VALUE "PAGE ".

000960 02 PAG PICTURE ZZ9.

000970 01 HEAD-3.

000980 02 FILLER PICTURE X(15) VALUE "FOR WEEK ENDING".

000990 02 FILLER PICTURE X(14) VALUE SPACES.

001000 02 DD PICTURE 99.

001010 02 FILLER PICTURE X VALUE SPACES.

001020 02 MM PICTURE X(4).

001030 02 FILLER PICTURE X VALUE SPACES.

001040 02 FILLER PICTURE XX VALUE "19".

001050 02 YY PICTURE 99.

001060 01 HEAD-4.

001070 02 FILLER PICTURE X(75) VALUE SPACES.

001080 02 FILLER PICTURE X(8) VALUE "BORROWER".

001090 02 FILLER PICTURE X(44) VALUE SPACES.

001100 02 FILLER PICTURE X(4) VALUE "OVER".

001110 01 HEAD-5.

001120 02 FILLER PICTURE X(11) VALUE "CALL NUMBER".


001130 02 FILLER PICTURE XX VALUE SPACES.

001140 02 FILLER PICTURE X(5) VALUE "TITLE".

001150 02 FILLER PICTURE X(55) VALUE SPACES.

001160 02 FILLER PICTURE X(11) VALUE "NUMBER NAME".

001170 02 FILLER PICTURE X(31) VALUE SPACES.

001180 02 FILLER PICTURE X(4) VALUE SPACES.  
 001190 - 02 FILLER PICTURE XXX VALUE "DUE".  
 001200 01 HEAD-6.  
 001210 02 FILLER PICTURE X(127) VALUE SPACES.  
 001220 02 FILLER PICTURE X(4) VALUE "DAYS".  
 001230 01 MONTH-TABLE.  
 001240 02 FILLER PICTURE X(4) VALUE "JAN.".   
 001250 02 FILLER PICTURE X(4) VALUE "FEB.".   
 001260 02 FILLER PICTURE X(4) VALUE "MAR.".   
 001270 02 FILLER PICTURE X(4) VALUE "APR.".   
 001280 02 FILLER PICTURE X(4) VALUE "MAY".   
 001290 02 FILLER PICTURE X(4) VALUE "JUN.".   
 001300 02 FILLER PICTURE X(4) VALUE "JUL.".   
 001310 02 FILLER PICTURE X(4) VALUE "AUG.".   
 001320 02 FILLER PICTURE X(4) VALUE "SEP.".   
 001330 02 FILLER PICTURE X(4) VALUE "OCT.".   
 001340 02 FILLER PICTURE X(4) VALUE "NOV.".   
 001350 02 FILLER PICTURE X(4) VALUE "DEC.".   
 001360 01 MONTH-TAB REDEFINES MONTH-TABLE.  
 001370 02 MONTHN OCCURS 12 TIMES PICTURE X(4).  
 001380 01 DETAIL-LINE-1.  
 001390 02 FRO PICTURE 999.  
 001400 02 FILLER PICTURE X VALUE ".".  
 001410 02 BEH PICTURE 9(8).  
 001420 02 FILLER PICTURE X VALUE SPACE.  
 001430 02 TITL PICTURE X(60).  
 001440 02 NUM PICTURE X(5).  
 001450 02 FILLER PICTURE XX VALUE SPACES.  
 001460 02 B-N PICTURE X(35).  
 001470 02 D PICTURE Z9.  
 001480 02 FILLER PICTURE X VALUE SPACES.  
 001490 02 M PICTURE XXXX.  
 001500 02 Y PICTURE 99.  
 001510 02 FILLER PICTURE XXX VALUE SPACES.  
 001520 02 D-O-D PICTURE ZZZ.  
 001530 01 DETAIL-LINE-2.  
 001540 02 CUT PICTURE X(5).  
 001550 02 FILLER PICTURE X(3) VALUE SPACES.  
 001560 02 FILLER PICTURE X VALUE "C".  
 001570 02 COP PICTURE XX.  
 001580 01 DETAIL-LINE-3.  
 001590 02 BOOK-N PICTURE X(5).  
 001600 02 MEM-NUM PICTURE X(5).  
 001610 02 DDD PICTURE XX.  
 001620 02 MMM PICTURE X(4).  
 001630 02 YYY PICTURE XX.  
 001640 02 OVERDUE PICTURE XXX.  
 001650 PROCEDURE DIVISION.  
 001660 BEGIN. ACCEPT DATE-CHECK.  
 001670 OPEN INPUT TAPEA INPUT FILEA INPUT FILEB OUTPUT PRIN  
 001680 OUTPUT PRINTB.  
 001690 P-4. MOVE SPACES TO PRT WRITE PRT BEFORE TOP-PAGE.  
 001700 MOVE HEAD-1 TO PRT WRITE PRT BEFORE 2 LINES.  
 001710 ADD 1 TO B MOVE B TO PAG.  
 001720 MOVE HEAD-2 TO PRT WRITE PRT.  
 001730 MOVE DY TO DD.  
 001740 MOVE YR TO YY.  
 001750 COMPUTE I = MH.  
 001760 MOVE MONTHN (I) TO MM.  
 001770 MOVE HEAD-3 TO PRT WRITE PRT BEFORE 2 LINES.  
 001780 MOVE HEAD-6 TO PRT WRITE PRT.

```

001790     MOVE HEAD-6 TO PRT WRITE PRT.
001800     MOVE HEAD-4 TO PRT WRITE PRT.
001810     MOVE HEAD-5 TO PRT WRITE PRT BEFORE 2 LINES.
001820 READA. READ FILEB AT END GO TO E-0-J.
001830 R-1.  READ FILEA AT END  PERFORM E-0-J-1.
001840     MOVE MH TO MN MOVE DY TO DN MOVE YR TO YN.
001850 R-2.  READ TAPEA AT END  PERFORM E-0-J-1.
001860 I-2.  IF ACC-NO = ACCESSION MOVE CUTTER TO CUT
001870     MOVE COPIES TO COP MOVE FRONT TO FRO
001880     MOVE BEHIND TO BEH MOVE TITLE TO TITL
001890     MOVE ACC-NO TO BOOK-N GO TO I-1.
001900     PERFORM R-2 GO TO I-2.
001910 I-1.  IF MEM-NO = MEMBER-NO PERFORM P-3 THRU P-7 GO TO
001920     PERFORM R-1 GO TO I-1.
001930 P-3.  COMPUTE I = MO
001940     IF DN LESS THAN DA
001950     ADD 30 TO DN SUBTRACT 1 FROM MN GO TO P-1.
001960 P-1.  COMPUTE DE = DN - DA.
001970     IF MN LESS THAN MO
001980     ADD 12 TO MN SUBTRACT 1 FROM YN GO TO P-2.
001990 P-2.  COMPUTE ME = MN - MO.
002000     IF YN LESS THAN YE MOVE 000 TO D-0-D GO TO P-5.
002010     COMPUTE YA = YN - YE.
002020     COMPUTE DP = DE + 30 * ME + 360 * YA.
002030     MOVE MEM-NO TO MEM-NUM
002040     MOVE DA TO DDD
002050     MOVE MONTHN (I) TO MMM
002060     MOVE YE TO YYY
002070     MOVE DP TO OVERDUE
002080     MOVE SPACES TO TB.
002090     MOVE DETAIL-LINE-3 TO TB.
002100     WRITE TB.
002110     MOVE DP TO D-0-D.
002120 P-5.  MOVE MEMBER-NAME TO B-N
002130     MOVE MEM-NO TO NUM
002140     MOVE DA TO D
002150     MOVE MONTHN (I) TO M
002160     MOVE YE TO Y
002170     MOVE DETAIL-LINE-1 TO PRT.
002180     WRITE PRT.
002190     MOVE DETAIL-LINE-2 TO PRT.
002200     WRITE PRT BEFORE 1 LINE.
002210 P-7.  EXIT.
002220 E-0-J-1. CLOSE TAPEA FILEA OPEN INPUT TAPEA INPUT FILEA.
002230 E-0-J. CLOSE TAPEA FILEA FILEB PRINTA PRINTB STOP RUN.
999999 END COBOL

```

ผนวก ฉ .

โปรแกรมที่ 6. การจัดทำใบตรวจถามหนังสือที่ยังไม่มาคืนเกิน ๗ วัน

000010 IDENTIFICATION DIVISION.  
 000020 PROGRAM-ID. OVERDUE.  
 000030 AUTHOR. WARAWUDJ KRUASIN.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL  
 000080 MEMORY SIZE 24576 CHARACTERS.  
 000090 SPECIAL-NAMES. PAGE IS TOP-PAGE.  
 000100 INPUT-OUTPUT SECTION.  
 000110 FILE-CONTROL.  
 000120 SELECT TAPEA ASSIGN TO TAPE-UNIT DC.  
 000130 SELECT FILEA ASSIGN TO TAPE-UNIT DA.  
 000140 SELECT WORKA ASSIGN TO TAPE-UNIT DD.  
 000150 SELECT PRINTB ASSIGN TO PRINTER B.  
 000160 DATA DIVISION.  
 000170 FILE SECTION.  
 000180 FD TAPEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000190 IS "LIBC" DATA RECORD IS RECORD-CONTENT.  
 000200 01 RECORD-CONTENT.  
 000210 02 ACCESSION PICTURE 9(5).  
 000220 02 TITLE PICTURE X(60).  
 000230 02 FILLER PICTURE X(20).  
 000240 02 WRITER.  
 000250 03 WRITER-1 PICTURE X(20).  
 000260 03 WRITER-2 PICTURE X(20).  
 000270 03 WRITER-3 PICTURE X(20).  
 000280 02 FILLER PICTURE X(20).  
 000290 02 CLASSIFICATION.  
 000300 03 CALL-NUMBER.  
 000310 04 FRONT PICTURE 999.  
 000320 04 BEHIND PICTURE 9(8).  
 000330 03 CUTTER PICTURE X(5).  
 000340 03 WORKING-AREA PICTURE X(8).  
 000350 02 EDITION PICTURE 99.  
 000360 02 YEAR PICTURE 9(4).  
 000370 02 COPIES PICTURE XX.  
 000380 02 PAGE-NO PICTURE 999.  
 000390 02 PUBLICATION PICTURE X(40).  
 000400 02 BOOK-CONTENT OCCURS 25 TIMES.  
 000410 03 BOOK-CODE PICTURE 9(7).  
 000420 03 CONTENT PICTURE X(67).  
 000430 03 FROM-PAGE PICTURE 999.  
 000440 03 TO-PAGE PICTURE 999.  
 000450 FD FILEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000460 "LIBB" DATA RECORD IS MEMBER.  
 000470 01 MEMBER.  
 000480 02 MEMBER-NO PICTURE X(5).  
 000490 02 MEMBER-NAME PICTURE X(35).  
 000500 02 MEMBER-ADDR PICTURE X(30).  
 000510 02 MEMBER-STA PICTURE X.  
 000520 02 MEMBER-FAC PICTURE 99.  
 000530 02 FILLER PICTURE X.  
 000540 02 MEMBER-EXP.  
 000550 03 DATE PICTURE 99.  
 000560 03 MONTH PICTURE 99.

000570 03 YEAR PICTURE XX.  
 000580 FD WORKA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000590 IS "LIBF" DATA RECORD IS WORK-REC.  
 000600 01 WORK-REC.  
 000610 02 BK-NO PICTURE X(5).  
 000620 02 MB-NO PICTURE X(5).  
 000630 02 RET-DATE PICTURE X(8).  
 000640 02 OVD PICTURE X(3).  
 000650 FD PRINTB LABEL RECORD IS OMITTED DATA RECORD IS PRT.  
 000660 01 PRT PICTURE X(132).  
 000670 WORKING-STORAGE SECTION.  
 000680 77 A PICTURE 9.  
 000690 77 I PICTURE 99.  
 000700 01 FAC-TABLE.  
 000710 02 FILLER PICTURE X(18) VALUE "COMMERCE-ACCTNC" ".  
 000720 02 FILLER PICTURE X(18) VALUE "MEDICAL" ".  
 000730 02 FILLER PICTURE X(18) VALUE "POLITICAL SCIENCE" ".  
 000740 02 FILLER PICTURE X(18) VALUE "ECONOMICS" ".  
 000750 02 FILLER PICTURE X(18) VALUE "EDUCATION" ".  
 000760 02 FILLER PICTURE X(18) VALUE "ENGINEERING" ".  
 000770 02 FILLER PICTURE X(18) VALUE "ARCHITECTURE" ".  
 000780 02 FILLER PICTURE X(18) VALUE "SCIENCE" ".  
 000790 02 FILLER PICTURE X(18) VALUE "VETERINARY SCIENCE" ".  
 000800 02 FILLER PICTURE X(18) VALUE "COMMUNCTN PUB RLTN" ".  
 000810 02 FILLER PICTURE X(18) VALUE "ARTS" ".  
 000820 02 FILLER PICTURE X(18) VALUE "LAWS" ".  
 000830 02 FILLER PICTURE X(18) VALUE "PHAMACY" ".  
 000840 02 FILLER PICTURE X(18) VALUE "DEMOGRAPHY" ".  
 000850 02 FILLER PICTURE X(18) VALUE "GRADUATED SCHOOL" ".  
 000860 01 FACULTY-TABLE REDEFINES FAC-TABLE.  
 000870 02 FACULTYN OCCURS 15 TIMES PICTURE X(18).  
 000880 01 HEAD-1.  
 000890 02 FILLER PICTURE X(23) VALUE SPACES.  
 000900 02 FILLER PICTURE X(85) VALUE ALL ":".  
 000910 01 HEAD-2.  
 000920 02 FILLER PICTURE X(23) VALUE SPACES.  
 000930 02 FILLER PICTURE X VALUE ":".  
 000940 02 FILLER PICTURE X(83) VALUE SPACES.  
 000950 02 FILLER PICTURE X VALUE ":".  
 000960 01 HEAD-3.  
 000970 02 FILLER PICTURE X(23) VALUE SPACES.  
 000980 02 FILLER PICTURE X VALUE ":".  
 000990 02 FILLER PICTURE X(28) VALUE SPACES.  
 001000 02 FILLER PICTURE X(28) VALUE  
 001010 "O V E R D U E N O T I C E".  
 001020 02 FILLER PICTURE X(27) VALUE SPACES.  
 001030 02 FILLER PICTURE X VALUE ":".  
 001040 01 HEAD-4.  
 001050 02 FILLER PICTURE X(23) VALUE SPACES.  
 001060 02 FILLER PICTURE X VALUE ":".  
 001070 02 FILLER PICTURE X(30) VALUE SPACES.  
 001080 02 FILLER PICTURE X(24) VALUE  
 001090 "COMPUTER SCIENCE LIBRARY".  
 001100 02 FILLER PICTURE X(29) VALUE SPACES.  
 001110 02 FILLER PICTURE X VALUE ":".  
 001120 01 HEAD-5.  
 001130 02 FILLER PICTURE X(23) VALUE SPACES.  
 001140 02 FILLER PICTURE X VALUE ":".  
 001150 02 FILLER PICTURE X(21) VALUE SPACES.  
 001160 02 FILLER PICTURE X(42) VALUE  
 001170 "GRADUATED SCHOOL CHULALONGKORN UNIVERSITY".



001180 02 FILLER PICTURE X(20) VALUE SPACES.  
 001190 02 FILLER PICTURE X VALUE ":".  
 001200 01 HEAD-6.  
 001210 02 FILLER PICTURE X(23) VALUE SPACES.  
 001220 02 FILLER PICTURE X VALUE ":".  
 001230 02 FILLER PICTURE X(4) VALUE SPACES.  
 001240 02 FILLER PICTURE X(78) VALUE  
 001250 "THE MATERIALS LISTED BELOW HAVE BEEN CHARGED OUT TO YOU ON  
 001260- "HE DATE INDICATED."  
 001270 02 FILLER PICTURE X(2) VALUE SPACES.  
 001280 02 FILLER PICTURE X VALUE ":".  
 001290 01 HEAD-7.  
 001300 02 FILLER PICTURE X(23) VALUE SPACES.  
 001310 02 FILLER PICTURE X VALUE ":".  
 001320 02 FILLER PICTURE X(9) VALUE SPACES.  
 001330 02 FILLER PICTURE X(66) VALUE  
 001340 "THESE MATERIALS SHOULD EITHER BE RENEWED, RETURNED TO THE L  
 001350- "BRARY."  
 001360 02 FILLER PICTURE X(8) VALUE SPACES.  
 001370 02 FILLER PICTURE X VALUE ":".  
 001380 01 HEAD-8.  
 001390 02 FILLER PICTURE X(23) VALUE SPACES.  
 001400 02 FILLER PICTURE X VALUE ":".  
 001410 02 FILLER PICTURE X(9) VALUE SPACES.  
 001420 02 FILLER PICTURE X(66) VALUE  
 001430 "PLEASE RETURN THE MATERIALS TO RENEW. IF YOU ALREADY HAVE R  
 001440- "TURNED".  
 001450 02 FILLER PICTURE X(8) VALUE SPACES.  
 001460 02 FILLER PICTURE X VALUE ":".  
 001470 01 HEAD-9.  
 001480 02 FILLER PICTURE X(23) VALUE SPACES.  
 001490 02 FILLER PICTURE X VALUE ":".  
 001500 02 FILLER PICTURE X(9) VALUE SPACES.  
 001510 02 FILLER PICTURE X(65) VALUE  
 001520 "THE MATERIALS IN THE LAST FEW DAYS, PLEASE DISREGARD THIS N  
 001530- "TICE."  
 001540 02 FILLER PICTURE X(9) VALUE SPACES.  
 001550 02 FILLER PICTURE X VALUE ":".  
 001560 01 HEAD-10.  
 001570 02 FILLER PICTURE X(23) VALUE SPACES.  
 001580 02 FILLER PICTURE X VALUE ":".  
 001590 02 FILLER PICTURE X(16) VALUE SPACES.  
 001600 02 FILLER PICTURE X(5) VALUE "TITLE".  
 001610 02 FILLER PICTURE X(50) VALUE SPACES.  
 001620 02 FILLER PICTURE X(8) VALUE "DATE DUE".  
 001630 02 FILLER PICTURE X(4) VALUE SPACES.  
 001640 02 FILLER PICTURE X VALUE ":".  
 001650 01 HEAD-11.  
 001660 02 FILLER PICTURE X(23) VALUE SPACES.  
 001670 02 FILLER PICTURE X VALUE ":".  
 001680 02 FILLER PICTURE X(12) VALUE SPACES.  
 001690 02 NAM PICTURE X(35).  
 001700 02 DATE PICTURE X(12).  
 001710 02 FILLER PICTURE X(24) VALUE SPACES.  
 001720 02 FILLER PICTURE X VALUE ":".  
 001730 01 HEAD-12.  
 001740 02 FILLER PICTURE X(23) VALUE SPACES.  
 001750 02 FILLER PICTURE X VALUE ":".  
 001760 02 FILLER PICTURE X(12) VALUE SPACES.  
 001770 02 FAC PICTURE X(18).  
 001780 02 FILLER PICTURE X(8) VALUE "FACULTY,".

```

001790      02 FILLER PICTURE X(45) VALUE SPACES.
001800      02 FILLER      PICTURE X VALUE ":".
001810 01 HEAD-13.
001820      02 FILLER PICTURE X(23) VALUE SPACES.
001830      02 FILLER      PICTURE X VALUE ":".
001840      02 FILLER PICTURE X(12) VALUE SPACES.
001850      02 FILLER PICTURE X(24) VALUE "CHULALONGKRON UNIVERSI
001860      02 FILLER PICTURE X(47) VALUE SPACES.
001870      02 FILLER      PICTURE X VALUE ":".
001880 01 HEAD-14.
001890      02 FILLER PICTURE X(23) VALUE SPACES.
001900      02 FILLER      PICTURE X VALUE ":".
001910      02 FILLER      PICTURE X(8) VALUE SPACES.
001920      02 BOOK-TITLE PICTURE X(60).
001930      02 R-D PICTURE X(8).
001940      02 FILLER PICTURE X(7) VALUE SPACES.
001950      02 FILLER      PICTURE X VALUE ":".
001960 01 DAYTODAY.
001970      02 DT PICTURE X(8).
001980 PROCEDURE DIVISION.
001990 BEGIN.
002000      ACCEPT DAYTODAY.
002010      OPEN INPUT TAPEA INPUT FILEA INPUT WORKA OUTPUT PRINTB.
002020 9. MOVE SPACES TO PRT WRITE PRT BEFORE TOP-PAGE.
002030      MOVE ZERO TO A.
002040 10. READ WORKA AT END GO TO EOJ.
002050 11. READ TAPEA AT END GO TO EOJA.
002060 12. READ FILEA AT END GO TO EOJA.
002070 15. IF MB-NO NOT EQUAL MEMBER-NO PERFORM 12.
002080      MOVE MEMBER-NAME TO NAM.
002090      MOVE DT TO DATE.
002100      COMPUTE I = MEMBER-FAC.
002110      MOVE FACULTYN (I) TO FAC.
002120      MOVE HEAD-1 TO PRT WRITE PRT.
002130      PERFORM 17.
002140      MOVE HEAD-3 TO PRT WRITE PRT.
002150      PERFORM 17.
002160      MOVE HEAD-4 TO PRT WRITE PRT.
002170      MOVE HEAD-5 TO PRT WRITE PRT.
002180      PERFORM 17 3 TIMES.
002190      MOVE HEAD-11 TO PRT WRITE PRT.
002200      MOVE HEAD-12, TO PRT WRITE PRT.
002210      MOVE HEAD-13 TO PRT WRITE PRT.
002220      PERFORM 17 3 TIMES.
002230      MOVE HEAD-6 TO PRT WRITE PRT.
002240      MOVE HEAD-7 TO PRT WRITE PRT.
002250      MOVE HEAD-8 TO PRT WRITE PRT.
002260      MOVE HEAD-9 TO PRT WRITE PRT.
002270      PERFORM 17 2 TIMES.
002280      MOVE HEAD-10 TO PRT WRITE PRT.
002290      PERFORM 17.
002300 13. IF BK-NO = ACCESSION PERFORM 14.
002310      PERFORM 11 GO TO 13.
002320 14. MOVE TITLE TO BOOK-TITLE.

```

002330 MOVE RET-DATE TO R-D.  
002340 MOVE HEAD-14 TO PRT WRITE PRT.  
002350 PERFORM 17 3 TIMES.  
002360 MOVE HEAD-1 TO PRT WRITE PRT.  
002370 ADD 1 TO A IF A = 2 GO TO 9.  
002380 GO TO 10.  
002390 17. MOVE HEAD-2 TO PRT WRITE PRT.  
002400 EOJ. CLOSE TAPEA WORKA FILEA PRINTB STOP RUN.  
002410 EOJA. CLOSE TAPEA FILEA OPEN INPUT TAPEA INPUT FILEA.  
002420 GO TO 11.  
999999 END COBOL

หมวด ข.

โปรแกรมที่ 7. การจัดพิมพ์ทะเบียนสถิติในระบบจ่ายรับจาก file  
เทปแม่เหล็ก

000010 IDENTIFICATION DIVISION.  
 000020 PROGRAM-ID. STAT.  
 000030 AUTHOR. WARAWUDJ KRUASIN.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL.  
 000080 SPECIAL-NAMES. PAGE IS TOP-PAGE.  
 000090 INPUT-OUTPUT SECTION.  
 000100 FILE-CONTROL.  
 000110 SELECT TAPEB ASSIGN TO TAPE-UNIT DC.  
 000120       SELECT PRINTA ASSIGN TO PRINTER B.  
 000130 DATA DIVISION.  
 000140 FILE SECTION.  
 000150 FD TAPEB LABEL RECORD ARE STANDARD VALUE OF IDENTIFICATION  
 000160       IS "LIBE" DATA RECORD IS RECB.  
 000170 01 RECB.  
 000180       02 NO-MEMBRER PICTURE X(5).  
 000190       02 NAME-MEMBER PICTURE X(35).  
 000200       02 ADDR-MEMBER PICTURE X(30).  
 000210       02 STATUS-MEMBER PICTURE X.  
 000220       02 EXPIRE-DATE PICTURE X(6).  
 000230       02 LAST-RETURN PICTURE X(8).  
 000240       02 NO-FINE PICTURE XXX.  
 000250       02 BOOK-DAMAGE PICTURE XXX.  
 000260       02 BOOK-LOST PICTURE XXX.  
 000270 FD PRINTA LABEL RECORD IS OMITTED DATA RECORD IS PRT.  
 000280 01 PRT PICTURE X(132).  
 000290 WORKING-STORAGE SECTION.  
 000300 77 M PICTURE 99.  
 000310 01 HEAD-1.  
 000320       02 FILLER PICTURE X(45) VALUE "C O M P U T E R S C I E N  
 000330-       " L I B R A R Y".  
 000340 01 HEAD-2.  
 000350       02 FILLER PICTURE X(36) VALUE  
 000360       "REPORT ON CIRCULATION CONTROL SYSTEM".  
 000370 01 HEAD-3.  
 000380       02 FILLER PICTURE X(74) VALUE SPACES.  
 000390       \*02 FILLER PICTURE X(6) VALUE "STA- "  
 000400       02 FILLER PICTURE X(9) VALUE "EXPIRE "  
 000410       02 FILLER PICTURE X(11) VALUE "LAST-RETURN".  
 000420       02 FILLER PICTURE X(9) VALUE SPACES.  
 000430       02 FILLER PICTURE X(9) VALUE "NUMBER OF".  
 000440 01 HEAD-4.  
 000450       02 FILLER PICTURE X(6) VALUE "NUMBER".  
 000460       02 FILLER PICTURE X(3) VALUE SPACES.  
 000470       02 FILLER PICTURE X(4) VALUE "NAME".  
 000480       02 FILLER PICTURE X(31) VALUE SPACES.  
 000490       02 FILLER PICTURE X(7) VALUE "ADDRESS".  
 000500       02 FILLER PICTURE X(23) VALUE SPACES.  
 000510       02 FILLER PICTURE X(7) VALUE "TUS "  
 000520       02 FILLER PICTURE X(10) VALUE "DATE "  
 000530       02 FILLER PICTURE X(8) VALUE "DATE "  
 000540       02 FILLER PICTURE X(3) VALUE SPACES.  
 000550       02 FILLER PICTURE X(6) VALUE " FINE ".  
 000560       02 FILLER PICTURE X(10) VALUE "BOOK-LOST ".

```

000570      02 FILLER PICTURE X(11) VALUE "BOOK-DAMAGE".
000580 01 HEAD-5.
000590      02 N PICTURE X(5).
000600      02 FILLER PICTURE X(4) VALUE SPACES.
000610      02 NA PICTURE X(35).
000620      02 AD PICTURE X(30).
000630      02 FILLER PICTURE X VALUE SPACES.
000640      02 ST PICTURE X.
000650      02 FILLER PICTURE X(3) VALUF SPACES.
000660      02 DE PICTURE X(8).
000670      02 FILLER PICTURE XXX VALUE SPACES.
000680      02 R-T PICTURE X(8).
000690      02 FILLER PICTURE X(3) VALUE SPACES.
000700      02 FIN PICTURE ZZZ.
000710      02 FILLER PICTURE X(5) VALUE SPACES.
000720      02 N-L PICTURE ZZZ.
000730      02 FILLER PICTURE X(7) VALUE SPACES.
000740      02 N-D PICTURE ZZZ.
000750 PROCEDURE DIVISION.
000760 BEGIN.
000770 OPEN INPUT TAPEB OUTPUT PRINTA.
000780 10. MOVE SPACES TO PRT WRITE PRT BEFORE TOP-PAGE.
000790 MOVE ZERO TO M.
000800 MOVE HEAD-1 TO PRT WRITE PRT BEFORE 2 LINES.
000810 MOVE HEAD-2 TO PRT WRITE PRT BEFORE 2 LINES.
000820 MOVE HEAD-3 TO PRT WRITE PRT.
000830 MOVE HEAD-4 TO PRT WRITE PRT BEFORE 2 LINES.
000840 11. READ TAPEB AT END CLOSE TAPEB PRINTA.
000850 MOVE NO-MEMBER TO N.
000860 MOVE NAME-MEMBER TO NA.
000870 MOVE ADDR-MEMBER TO AD.
000880 MOVE STATUS-MEMBER TO ST.
000890 MOVE EXPIRE-DATE TO DE.
000900 • MOVE LAST-RETURN TO R-T.
000910 MOVE BOOK-LOST TO N-L.
000920 MOVE BOOK-DAMAGE TO N-D.
000930 MOVE NO-FINE TO FIN.
000940 MOVE HEAD-5 TO PRT WRITE PRT.
000950 ADD 1 TO M.
000960 IF M = 25 GO TO 10.
000970 GO TO 11.
999999 END COBOL

```

ผนวก ช.

โปรแกรมที่ 8. การจัดทำทะเบียนหนังสือเรียงตามลำดับอักษร  
ชื่อเรื่อง

000010 IDENTIFICATION DIVISION.  
 000020 PROGRAM-ID. BOOK-LIST.  
 000030 AUTHOR. WARAWUDJ KRUSIN.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL.  
 000080 SPECIAL-NAMES. PAGE IS TOP-PAGE.  
 000090 INPUT-OUTPUT SECTION.  
 000100 FILE-CONTROL.  
 000110     SELECT TAPEA ASSIGN TO TAPE-UNIT DC.  
 000120     SELECT PRINTA ASSIGN TO PRINTER B.  
 000130 DATA DIVISION.  
 000140 FILE SECTION.  
 000150 FD TAPEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000160     IS "LIBC" DATA RECORD IS RECORD-CONTENT.  
 000170 01 RECORD-CONTENT.  
 000180     02 ACCESSION PICTURE 9(5).  
 000190     02 TITLE PICTURE X(60).  
 000200     02 SUBJECT PICTURE X(14).  
 000210     02 KIND PICTURE X.  
 000220     02 FILLER PICTURE X(5).  
 000230     02 WRITER.  
 000240         03 WRITER-1 PICTURE X(20).  
 000250         03 WRITER-2 PICTURE X(20).  
 000260         03 WRITER-3 PICTURE X(20).  
 000270     02 FILLER PICTURE X(20).  
 000280     02 CLASSIFICATION.  
 000290         03 CALL-NUMBER.  
 000300         04 FRONT PICTURE 999.  
 000310         04 BEHIND PICTURE 9(8).  
 000320         03 CUTTER PICTURE X(5).  
 000330         03 WORKING-AREA PICTURE X(8).  
 000340     02 EDITION PICTURE 99.  
 000350     02 YEAR PICTURE 9(4).  
 000360     02 COPIES PICTURE XX.  
 000370     02 PAGE-NO PICTURE 999.  
 000380     02 PUBLICATION PICTURE X(40).  
 000390     02 BOOK-CONTENT OCCURS 25 TIMES.  
 000400         03 BOOK-CODE PICTURE 9(7).  
 000410         03 CONTENT PICTURE X(67).  
 000420         03 FROM-PAGE PICTURE 999.  
 000430         03 TO-PAGE PICTURE 999.  
 000440 FD PRINTA LABEL RECORD IS OMITTED DATA RECORD IS PRT.  
 000450 01 PRT PICTURE X(132).  
 000460 WORKING-STORAGE SECTION.  
 000470 77 I PICTURE 99.  
 000480 01 HEAD-1.  
 000490     02 FILLER PICTURE X(45) VALUE "C O M P U T E R S C I E N C E  
 000500-     " L I B R A R Y".  
 000510 01 HEAD-2.  
 000520     02 FILLER PICTURE X(10) VALUE SPACES.  
 000530     02 FILLER PICTURE X(16) VALUE "BOOK MASTER FILE".  
 000540 01 HEAD-3.  
 000550     02 FILLER PICTURE X(15) VALUE SPACES.  
 000560     02 FILLER PICTURE X(5) VALUE "TITLE".





```

000570      02 FILLER PICTURE X(55) VALUE SPACES.
000580      02 FILLER PICTURE X(6) VALUE "AUTHOR".
000590      02 FILLER PICTURE X(15) VALUE SPACES.
000600      02 FILLER PICTURE X(6) VALUE "NUMBER".
000610      02 FILLER PICTURE X(5) VALUE SPACES.
000620      02 FILLER PICTURE X(14) VALUE "CLASSIFICATION".
000630 01 HEAD-4.
000640      02 FILLER PICTURE X(13) VALUE SPACES.
000650      02 TITL PICTURE X(60).
000660      02 ATH1 PICTURE X(20).
000670      02 FILLER PICTURE X(2) VALUE SPACES.
000680      02 ACN PICTURE X(5).
000690      02 FILLER PICTURE X(5) VALUE SPACES.
000700      02 FRO PICTURE ZZ9.
000710      02 FILLER PICTURE X VALUE ".".
000720      02 BEN PICTURE 9(8).
000730      02 CUT PICTURE X(15).
000740 01 HEAD-5.
000750      02 FILLER PICTURE X(73) VALUE SPACES.
000760      02 ATH2 PICTURE X(20).
000770 PROCEDURE DIVISION.
000780 BEGIN.
000790 OPEN INPUT TAPEA OUTPUT PRINTA.
000800 A. MOVE SPACES TO PRT WRITE PRT BEFORE TOP-PAGE.
000810 MOVE ZERO TO I.
000820 MOVE HEAD-1 TO PRT WRITE PRT BEFORE 2 LINES.
000830 MOVE HEAD-2 TO PRT WRITE PRT BEFORE 3 LINES.
000840 B. READ TAPEA AT END CLOSE TAPEA PRINTA STOP RUN.
000850 MOVE SPACES TO PRT MOVE TITLE TO TITL.
000860 MOVE WRITER-1 TO ATH1 MOVE ACCESSION TO ACN.
000870 MOVE FRONT TO FRO MOVE BEHIND TO BEN.
000880 MOVE HEAD-4 TO PRT WRITE PRT.
000890 IF WRITER-2 = SPACE GO TO C.
000900 MOVE WRITER-2 TO ATH2.
000910 MOVE HEAD-5 TO PRT WRITE PRT.
000920 IF WRITER-3 = SPACE GO TO C.
000930 MOVE WRITER-3 TO ATH2 MOVE HEAD-5 TO PRT WRITE PRT.
000940 C. ADD 1 TO I IF I = 15 GO TO A.
000950 GO TO B.
999999 END COBOL

```

## ผนวก ๗.

โปรแกรมที่ 9. การจัดทำทะเบียนหนังสือเรียงตามลำดับอักษร  
ของผู้แต่ง

000010 IDENTIFICATION DIVISION.  
 000020 PROGRAM-ID. BOOK-LIST.  
 000030 AUTHOR. WARAWUDJ KRUSIN.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL.  
 000080 SPECIAL-NAMES. PAGE IS TOP-PAGE.  
 000090 INPUT-OUTPUT SECTION.  
 000100 FILE-CONTROL.  
 000110       SELECT TAPEA ASSIGN TO TAPE-UNIT DC.  
 000120       SELECT PRINTA ASSIGN TO PRINTER B.  
 000130 DATA DIVISION.  
 000140 FILE SECTION.  
 000150 FD TAPEA LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000160       IS "LIBC" DATA RECORD IS RECORD-CONTENT.  
 000170 01 RECORD-CONTENT.  
 000180       02 ACCESSION PICTURE 9(5).  
 000190       02 TITLE PICTURE X(60).  
 000200       02 SUBJECT PICTURE X(14).  
 000210       02 KIND PICTURE X.  
 000220       02 FILLER PICTURE X(5).  
 000230       02 WRITER.  
 000240           03 WRITER-1 PICTURE X(20).  
 000250           03 WRITER-2 PICTURE X(20).  
 000260           03 WRITER-3 PICTURE X(20).  
 000270       02 FILLER PICTURE X(20).  
 000280       02 CLASSIFICATION.  
 000290           03 CALL-NUMBER.  
 000300           04 FRONT PICTURE 999.  
 000310           04 BEHIND PICTURE 9(8).  
 000320           03 CUTTER PICTURE X(5).  
 000330           03 WORKING-AREA PICTURE X(8).  
 000340       02 EDITION PICTURE 99.  
 000350       02 YEAR PICTURE 9(4).  
 000360       02 COPIES PICTURE XX.  
 000370       02 PAGE-NO PICTURE 999.  
 000380       02 PUBLICATION PICTURE X(40).  
 000390       02 BOOK-CONTENT OCCURS 25 TIMES.  
 000400           03 BOOK-CODE PICTURE 9(7).  
 000410           03 CONTENT PICTURE X(67).  
 000420           03 FROM-PAGE PICTURE 999.  
 000430           03 TO-PAGE PICTURE 999.  
 000440 FD PRINTA LABEL RECORD IS OMITTED DATA RECORD IS PRT.  
 000450 01 PRT PICTURE X(132).  
 000460 WORKING-STORAGE SECTION.  
 000470 77 I PICTURE 99.  
 000480 01 HEAD-1.  
 000490       02 FILLER PICTURE X(45) VALUE "C O M P U T E R S C I E N C E  
 000500-       " L I B R A R Y".  
 000510 01 HEAD-2.  
 000520       02 FILLER PICTURE X(10) VALUE SPACES.  
 000530       02 FILLER PICTURE X(16) VALUE "BOOK MASTER FILE".  
 000540 01 HEAD-3.  
 000550       02 FILLER PICTURE X(15) VALUE SPACES.  
 000560       02 FILLER PICTURE X(6) VALUE "AUTHOR".

```

000570      02 FILLER PICTURE X(14) VALUE SPACES.
000580      02 FILLER PICTURE X(5) VALUE "TITLE".
000590      02 FILLER PICTURE X(55) VALUE SPACES.
000600      02 FILLER PICTURE X(6) VALUE "NUMBER".
000610      02 FILLER PICTURE X(5) VALUE SPACES.
000620      02 FILLER PICTURE X(14) VALUE "CLASSIFICATION".
000630 01 HEAD-4.
000640      02 FILLER PICTURE X(13) VALUE SPACES.
000650      02 ATH1 PICTURE X(20).
000660      02 TITL PICTURE X(60).
000670      02 FILLER PICTURE X(2) VALUE SPACES.
000680      02 ACN PICTURE X(5).
000690      02 FILLER PICTURE X(5) VALUE SPACES.
000700      02 FRO PICTURE ZZ9.
000710      02 FILLER PICTURE X VALUE ".".
000720      02 BEN PICTURE 9(8).
000730      02 CUT PICTURE X(5).
000740 01 HEAD-5.
000750      02 FILLER PICTURE X(15) VALUE SPACES.
000760      02 ATH2 PICTURE X(20).
000770 PROCEDURE DIVISION.
000780 BEGIN.
000790 OPEN INPUT TAPEA OUTPUT PRINTA.
000800 A. MOVE SPACES TO PRT WRITE PRT BEFORE TOP-PAGE.
000810 MOVE ZERO TO I.
000820 MOVE HEAD-1 TO PRT WRITE PRT BEFORE 2 LINES.
000830 MOVE HEAD-2 TO PRT WRITE PRT BEFORE 3 LINES.
000840 MOVE HEAD-3 TO PRT WRITE PRT BEFORE 2 LINES.
000850 B. READ TAPEA AT END CLOSE TAPEA PRINTA STOP RUN.
000860 MOVE SPACES TO PRT MOVE TITLE TO TITL.
000870 MOVE WRITER-1 TO ATH1 MOVE ACCESSION TO ACN.
000880 MOVE FRONT TO FRO MOVE BEHIND TO BEN.
000890 MOVE CUTTER TO CUT.
000900 MOVE HEAD-4 TO PRT WRITE PRT.
000910 IF WRITER-2 = SPACE GO TO C.
000920 MOVE WRITER-2 TO ATH2.
000930 MOVE HEAD-5 TO PRT WRITE PRT.
000940 IF WRITER-3 = SPACE GO TO C.
000950 MOVE WRITER-3 TO ATH2 MOVE HEAD-5 TO PRT WRITE PRT.
000960 C. ADD 1 TO I IF I = 15 GO TO A.
000970 GO TO B.
999999 END COBOL

```

ผนวก ๑.

โปรแกรมที่ 10. การจัดทำทะเบียนหนังสือจัดตามหมวดหนังสือ

000010 IDENTIFICATION DIVISION.  
 000020 PROGRAM-ID. SUBJECT-SEARCHING.  
 000030 AUTHOR. WARAWUDJ KRUIASIN.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL  
 000080 MEMORY SIZE 24576 CHARACTERS.  
 000090 SPECIAL-NAMES. PAGE IS PG.  
 000100 INPUT-OUTPUT SECTION.  
 000110 FILE-CONTROL.  
 000120 SELECT CARDFILE ASSIGN TO CARD-READER E.  
 000130 SELECT MASTER-FILE ASSIGN TO TAPE-UNIT DC.  
 000140 SELECT WRITING ASSIGN TO PRINTER B.  
 000150 DATA DIVISION.  
 000160 FILE SECTION.  
 000170 FD CARDFILE LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000180 IS "SUB" DATA RECORD IS CARDREC.  
 000190 01 CARDREC.  
 000200 02 SUBJECT PICTURE X(14).  
 000210 FD MASTER-FILE LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000220 IS "LIBA" DATA RECORD IS RECORD-DESCRIPTION.  
 000230 01 RECORD-DESCRIPTION.  
 000240 02 ACCESSION PICTURE 9(5).  
 000250 02 TITLE PICTURE X(60).  
 000260 02 SUBJECT-HEADING PICTURE X(14).  
 000270 02 KODE PICTURE X.  
 000280 02 WRITER.  
 000290 03 WRITER-1 PICTURE X(20).  
 000300 03 WRITER-2 PICTURE X(20).  
 000310 03 WRITER-3 PICTURE X(20).  
 000320 02 CLASSIFICATION.  
 000330 03 CALL-NUMBER.  
 000340 04 FRONT PICTURE 9(3).  
 000350 04 BEHIND PICTURE 9(8).  
 000360 03 CUTTER PICTURE X(5).  
 000370 03 WORKING-AREA PICTURE X(8).  
 000380 02 EDITION PICTURE 99.  
 000390 02 YEAR PICTURE 9(4).  
 000400 02 COPIES PICTURE XX.  
 000410 02 PAGE-NO PICTURE 999.  
 000420 02 PUBLICATION PICTURE X(40).  
 000430 02 BOOK-CONTENT OCCURS 25 TIMES.  
 000440 03 CONTENT-NO PICTURE 9(2).  
 000450 03 CONTENT PICTURE X(67).  
 000460 03 FROM-PAGE PICTURE 999.  
 000470 03 TO-PAGE PICTURE 999.  
 000480 03 KEYWORD OCCURS 16 TIMES PICTURE X(5).  
 000490 FD WRITING LABEL RECORD IS OMITTED DATA RECORD IS PRINT-REC.  
 000500 01 PRINT-REC PICTURE X(132).  
 000510 WORKING-STORAGE SECTION.  
 000520 01 HEAD-1.  
 000530 02 FILLER PICTURE X(45) VALUE "C O M P U T E R S C I E N C E  
 000540 " L I B R A R Y".  
 000550 01 HEAD-2.  
 000560 02 FILLER PICTURE X(10) VALUE SPACES.

```

000570      02 FILLER PICTURE X(26) VALUE "LISTING BY SUBJECT HEADING".
000580 01 HEAD-3.
000590      02 FILLER PICTURE X(10) VALUE SPACES.
000600      02 FILLER PICTURE X(18) VALUE "SUBJECT HEADING : ".
000610      02 SJ PICTURE X(14).
000620 01 HEAD-4.
000630      02 FILLER PICTURE X(15) VALUE SPACES.
000640      02 FILLER PICTURE X(5) VALUE "TITLE".
000650      02 FILLER PICTURE X(55) VALUE SPACES.
000660      02 FILLER PICTURE X(6) VALUE "AUTHOR".
000670      02 FILLER PICTURE X(14) VALUE SPACES.
000680      02 FILLER PICTURE X(6) VALUE "NUMBER".
000690      02 FILLER PICTURE X(7) VALUE SPACES.
000700      02 FILLER PICTURE X(14) VALUE "CLASSIFICATION".
000710 01 HEAD-5.
000720      02 FILLER PICTURE X(13) VALUE SPACES.
000730      02 TITL PICTURE X(60).
000740      02 WRT1 PICTURE X(20).
000750      02 FILLER PICTURE X(2) VALUE SPACES.
000760      02 ACN PICTURE X(5).
000770      02 FILLER PICTURE X(5) VALUE SPACES.
000780      02 FRO PICTURE ZZ9.
000790      02 FILLER PICTURE X VALUE ". ".
000800      02 BEN PICTURE 9(8).
000810      02 CUT PICTURE X(5).
000820 01 HEAD-6.
000830      02 FILLER PICTURE X(95) VALUE SPACES.
000840      02 WRT2 PICTURE X(20).
000850 PROCEDURE DIVISION.
000860 BEGIN.
000870 OPEN INPUT CARDFILE MASTER-FILE OUTPUT WRITING.
000880 MOVE SPACES TO PRINT-REC WRITE PRINT-REC BEFORE PG.
000890 MOVE HEAD-1 TO PRINT-REC.
000900 WRITE PRINT-REC BEFORE 2 LINES.
000910 MOVE HEAD-2 TO PRINT-REC.
000920 WRITE PRINT-REC BEFORE 3 LINES.
000930 READA. READ CARDFILE AT END GO TO FIN.
000940 MOVE SUBJECT TO SJ MOVE HEAD-3 TO PRINT-REC.
000950 WRITE PRINT-REC BEFORE 2 LINES.
000960 MOVE HEAD-4 TO PRINT-REC.
000970 WRITE PRINT-REC BEFORE 2 LINES.
000980 READB. READ MASTER-FILE AT END GO TO AGAIN.
000990 IF SUBJECT = SUBJECT-HEADING GO TO PRINA.
001000 GO TO READB.
001010 PRINA. MOVE TITLE TO TITL MOVE WRITER-1 TO WRT1
001020 MOVE ACCESSION TO ACN.
001030 MOVE FRONT TO FRO MOVE BEHIND TO BEN.
001040 MOVE CUTTER TO CUT.
001050 MOVE HEAD-5 TO PRINT-REC WRITE PRINT-REC.
001060 IF WRITER-2 = SPACE GO TO READB.
001070 MOVE WRITER-2 TO WRT2 MOVE HEAD-6 TO PRINT-REC WRITE PRINT-RE
001080- C.
001090 IF WRITER-3 = SPACE GO TO READB.
001100 MOVE WRITER-3 TO WRT2 MOVE HEAD-6 TO PRINT-REC
001110 WRITE PRINT-REC.
001120 GO TO READB.
001130 AGAIN. CLOSE MASTER-FILE.
001140 OPEN INPUT MASTER-FILE GO TO READA.
001150 FIN. CLOSE CARDFILE MASTER-FILE WRITING.
001160 STOP RUN.
999999 END COBOL

```

ผนวก ฎ.

โปรแกรมที่ 11. การค้นหาหนังสือโดยใช้ Keyword



000010 IDENTIFICATION DIVISION.  
 000020 AUTHOR. WARAWUDJ KRJASIN.  
 000030 PROGRAM-ID. KEYWORD-SEARCHING.  
 000040 ENVIRONMENT DIVISION.  
 000050 CONFIGURATION SECTION.  
 000060 SOURCE-COMPUTER. NEAC-2200-SPECIAL.  
 000070 OBJECT-COMPUTER. NEAC-2200 WITH SUPERVISOR CONTROL  
 000080 MEMORY SIZE 24576 CHARACTERS.  
 000090 SPECIAL-NAMES. PAGE IS CRN.  
 000100 INPUT-OUTPUT SECTION.  
 000110 FILE-CONTROL.  
     000120     SELECT ASKING            ASSIGN TO CARD-READER E.  
     000130     SELECT MASTER-FILE    ASSIGN TO TAPE-UNIT HC.  
     000140     SELECT PRINTING        ASSIGN TO PRINTER B.  
 000150 DATA DIVISION.  
 000160 FILE SECTION.  
 000170 FD    ASKING LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION IS  
 000180        "LIBK" DATA RECORD IS ASK.  
 000190 01    ASK.  
     000200        02    ASK-WORD PICTURE X(5) OCCURS 16 TIMES.  
 000210 FD    MASTER-FILE LABEL RECORD IS STANDARD VALUE OF IDENTIFICATION  
 000220        IS "LIBC" DATA RECORD IS RECORD-DESCRIPTION.  
 000230 01    RECORD-DESCRIPTION.  
     000240        02    ACCESSION            PICTURE 9(5).  
     000250        02    TITLE                PICTURE X(60).  
     000260        02    SUBJECT-HEADING    PICTURE X(14).  
     000270        02    KODE                 PICTURE X.  
     000280        02    WRITER.  
         000290            03    WRITER-1 PICTURE X(20).  
         000300            03    WRITER-2 PICTURE X(20).  
         000310            03    WRITER-3 PICTURE X(20).  
     000320        02    CLASSIFICATION.  
         000330            03    CALL-NUMBER.  
             000340                04    FRONT    PICTURE 9(3).  
             000350                04    BEHIND   PICTURE 9(8).  
         000360            03    CUTTER        PICTURE X(5).  
         000370            03    WORKING-AREA   PICTURE X(8).  
     000380        02    EDITION             PICTURE 99.  
     000390        02    YEAR                 PICTURE 9(4).  
     000400        02    COPIES                PICTURE XX.  
     000410        02    PAGE-NO              PICTURE 999.  
     000420        02    PUBLICATION         PICTURE X(40).  
     000430        02    BOOK-CONTENT OCCURS 25 TIMES.  
         000440            03    CONTENT-NO    PICTURE 9(2).  
         000450            03    CONTENT        PICTURE X(67).  
         000460            03    FROM-PAGE     PICTURE 999.  
         000470            03    TO-PAGE        PICTURE 999.  
         000480            03    KEYWORD OCCURS 16 TIMES PICTURE X(5).  
 000490 FD    PRINTING LABEL RECORD IS OMITTED DATA RECORD IS REC.  
 000500 01    REC PICTURE X(132).  
 000510 WORKING-STORAGE SECTION.  
     000520 77    I    PICTURE 99 VALUE ZERO.  
     000530 77    K    PICTURE 99 VALUE ZERO.  
     000540 77    L    PICTURE 99 VALUE ZERO.  
     000550 77    J    PICTURE 99 VALUE ZERO.  
 000560 01    HEAD-1.  
     000570        02    FILLER PICTURE X(45) VALUE "COMPUTER SCIENCE  
     000580        "    LIBRARY".

```

000590 01 HEAD-2.
000600 02 FILLER PICTURE X(34) VALUE "REPORT ON LIBRARY SERVICES SY
000610- "STEM.".
000620 01 HEAD-3.
000630 02 FILLER PICTURE X(7) VALUE SPACES.
000640 02 FILLER PICTURE X(19) VALUE "SEARCHING KEYWORD :".
000650 02 KW PICTURE X(5).
000660 01 HEAD-4.
000670 02 FILLER PICTURE X(7) VALUE SPACES.
000680 02 FILLER PICTURE X(14) VALUE "CALL NUMBER : ".
000690 02 FRO PICTURE ZZ9.
000700 02 FILLER PICTURE X VALUE ". ".
000710 02 BEN PICTURE 9(8).
000720 02 CUT PICTURE X(5).
000730 02 FILLER PICTURE X(9) VALUE " TITLE : ".
000740 02 TITL PICTURE X(60).
000750 02 FILLER PICTURE X(17) VALUE "ACCESSION NUMBER ".
000760 02 ACN PICTURE 9(5).
000770 01 HEAD-5.
000780 02 FILLER PICTURE X(7) VALUE SPACES.
000790 02 FILLER PICTURE X(10) VALUE "CHAPTER : ".
000800 02 CHO PICTURE ZZ.
000810 02 FILLER PICTURE XX VALUE SPACES.
000820 02 CNO PICTURE X(67).
000830 02 FILLER PICTURE X(7) VALUE " PAGE ".
000840 02 FP PICTURE ZZZ.
000850 02 FILLER PICTURE X(3) VALUE " - ".
000860 02 TP PICTURE ZZZ.
000870 PROCEDURE DIVISION.
000880 BEGIN. OPEN INPUT ASKING INPUT MASTER-FILE OUTPUT PRINTING.
000890 MOVE SPACE TO REC WRITE REC BEFORE ADVANCING CRN.
000900 MOVE HEAD-1 TO REC WRITE REC BEFORE 3 LINE.
000910 MOVE HEAD-2 TO REC WRITE REC BEFORE 2 LINE.
000920 READA. READ ASKING AT END GO TO EOJ.
000930 ADD 1 TO I IF ASK-WORD (I) = SPACES GO TO READA.
000940 MOVE ASK-WORD (I) TO KW.
000950 MOVE HEAD-3 TO REC WRITE REC BEFORE 2 LINE.
000960 READB. READ MASTER-FILE AT END GO TO AGAI.
000970 MOVE ZERO TO L.
000980 PERFORM AB VARYING K FROM 1 BY 1 UNTIL K = 26 GO TO READB.
000990 AB. PERFORM CD THRU EF VARYING J FROM 1 BY 1 UNTIL J = 17.
001000 CD. IF KEYWORD (K, J) = "CS " GO TO EF.
001010 IF ASK-WORD (I) = KEYWORD (K, J) GO TO PRIN.
001020 GO TO EF.
001030 PRIN. ADD 1 TO L IF L GREATER 1 GO TO PRINA.
001040 MOVE FRONT TO FRO MOVE BEHIND TO BEN.
001050 MOVE CUTTER TO CUT.
001060 MOVE TITLE TO TITL.
001070 MOVE ACCESSION TO ACN.
001080 MOVE HEAD-4 TO REC WRITE REC BEFORE 1 LINE.
001090 PRINA. MOVE CONTENT-NO (K) TO CHO.
001100 MOVE CONTENT (K) TO CNO.
001110 MOVE FROM-PAGE (K) TO FP.
001120 MOVE TO-PAGE (K) TO TP.
001130 MOVE HEAD-5 TO REC WRITE REC BEFORE 1 LINE.
001140 EF. EXIT.
001150 AGAI. CLOSE MASTER-FILE.
001160 OPEN INPUT MASTER-FILE GO TO READA.
001170 EOJ. CLOSE ASKING MASTER-FILE PRINTING.
001180 STOP RUN.
999999 END COBOL

```

ผนวก ฎ.

ตารางแสดง Keyword และรหัสของ Keyword ของ  
วิชาคอมพิวเตอร์ศาสตร์

รหัส	KEYWORD
CS001	ABACUS ABSOLUTE ADDRESS SEE ADDRESS CODE SEE CODE
CS002	ACCELERATION TIME
CS003	ACCESS
CS004	ARM
CS005	TIME
CS006	ACCOUNTING MACHINE
CS007	ACCUMULATOR
CS008	ADDRESS
CS009	ADP [AUTOMATIC DATA PROCESSING]
CS010	ALGOL [ALGORITHMIC LANGUAGE]
CS011	ALGORITHM
CS012	ALLOCATION
CS013	ALPHABETIC
CS014	ALPHAMERIC OR ALPHANUMERIC
CS015	ANALOG
CS016	COMPUTER ANALYSIS NUMERICAL SEE NUMERICAL ANALYSIS SYSTEM SEE SYSTEM ANALYSIS
CS017	APPLICATIONS
CS018	ARITHMETIC OPERATION STATEMENT SEE FORTRAN UNIT
CS019	
CS020	ARRAY
CS021	ASSEMBLE
CS022	ASSEMBLER
CS023	ASYNCHRONOUS COMPUTER
CS024	AUTOCODE AUTOMATIC DATA PROCESSING SEE ADP
CS025	AUTOMATION
CS026	AUXILIARY EQUIPMENT
CS027	STORAGE
CS028	BACKGROUNDING [BACKGROUND JOB]
CS029	BACKSPACE
CS030	BACK-UP SYSTEM
CS031	BASE
CS032	BASIC
CS033	BATCH PROCESSING
CS034	BAUD
CS035	BINARY [CODE, NOTATION]
CS036	CODE DECIMAL [BCD] DIGIT SEE BIT SEARCH
CS037	
CS038	BIONIC
CS039	BISTABLE

รหัส	KEYWORD
CS040	BIT
CS041	BLOCK
CS042	DIAGRAM SORT SEE SORT
CS043	BOOLEAN ALGEBRA
CS044	BOOTSTRAP
CS045	BRANCH
CS046	BUFFER
CS047	BUILT-IN
CS048	BUSINESS DATA PROCESSING
CS049	BYTE
CS050	CALCULATOR
CS051	CALL
CS052	CARD [CASPECT, CODE, FIELD] BED SEE KEYPUNCH HOPPER SEE HOPPER PUNCH READER STACKER SEE SORTER
CS053	
CS054	
CS055	CATHODE RAY TUBE [CRT]
CS056	CENTRAL PROCESSING UNIT [CPU]
CS057	CHAINING
CS058	CHANNEL
CS059	CHARACTER
CS060	CHECK
CS061	CIRCUIT
CS062	CLEAR
CS063	CLOCK
CS064	COBOL
CS065	CODE [CODING]
CS066	COLLATOR
CS067	COMMUNICATION
CS068	COMPILER
CS069	COMPLEMENT
CS070	COMPUTER
CS071	CONDITIONAL TRANSFER
CS072	CONSOLE
CS073	CONSTANT
CS074	CONTROL PANEL
CS075	STATEMENT
CS076	UNIT
CS077	CONVERSATIONAL MODE
CS078	CORE
CS079	CRYOGENIC
CS080	CYBERNATIC
CS081	CYCLE



รหัส	KEYWORD
CS082	DATA
CS083	COMMUNICATION
CS084	BASE [ORGANIZATION]
CS085	MANAGEMENT
CS086	PROCESSING
CS087	RECORDER
CS088	WORD
CS089	DEBUGGING
CS090	DECIMAL
CS091	DICISION TABLE
CS092	DECODE
CS093	DELAY
CS094	DEVICES
CS095	DIAGNOSTIC ROUTINE
CS096	DIGITAL COMPUTER
CS097	DIRECT ACCESS
CS098	DISK
CS099	DOCUMENTATION
CS100	DRUM
CS101	DUMP
CS102	DYNAMIC STORAGE
CS103	EAM [ELECTRONIC ACCOUNTING MACHINE] SEE ACCOUNTING MACHINE
CS104	EDP [ELECTRONIC DATA PROCESSING]
CS105	ENCODE
CS106	ERROR
CS107	EXECUTION
CS108	EXPRESSION
CS109	EXTRACT
CS110	FEASIBILITY STUDY
CS111	FEEDBACK
CS112	FIELD
CS113	FILE
CS114	ORGANIZATION
CS115	FIXEX POINT
CS116	WORD
CS117	FLIP-FLOP
CS118	FLOATING POINT
CS119	FLOWCHART
CS120	FORMAT
CS121	FORTRAN
CS122	FUNCTIONAL DESIGN
CS123	GAMES THEORY
	GANG PUNCH SEE PUNCH
CS124	GAP
	GATE SEE BOOLEAN ALGEBRA



รหัส	KEYWORD
	MAGNETIC DRUM SEE DRUM TAPE SEE TAPE
CS167	MAINTENANCE
CS168	FILE
CS169	MANAGEMENT INFORMATION SYSTEM
CS170	MANUAL OPERATION
CS171	MATCHING
CS172	MATHEMATICAL MODEL
CS173	MATRIX
CS174	MEMORY
CS175	MERGE
CS176	MICR [MAGNETIC INK CHARACTER RECOGNITION]
CS177	MICROPROGRAM
CS178	MINICOMPUTER
CS179	MODE
CS180	MODEM
CS181	MONITOR
CS182	MULTIPLEX
CS183	MULTIPROGRAMMING
CS184	NUMBER SYSTEM SYSTEM SEE RANDOM NUMBER
CS185	NUMERICAL ANALYSIS
CS186	OBJECT COMPUTER
CS187	PROGRAM
CS188	TIME
CS189	OCR [OPTICAL CHARACTER RECOGNITION]
CS190	OCTAL
CS191	OFF-LINE
CS192	ON-LINE
CS193	OPERAND
CS194	OPERATING SYSTEM OPERATION CODE SEE INSTRUCTION ORDER CODE SEE INSTRUCTION
CS195	OUTPUT DEVICES SEE DEVICES
CS196	OVERFLOW
CS197	OVERLAY PANEL CONTROL SEE CONTROL PANEL
CS198	PAPER TAPE
CS199	PARALLEL PROCESSING
CS200	PARAMETER
CS201	PARITY BIT CHECK SEE CHECK
CS202	PERIPHERAL EQUIPMENT SEE DEVICES
CS203	PERT [PROGRAM EVALUATION REVIEW TECHNIQUE] PL/1



รหัส	KEYWORD
CS204	PLOTTER
CS205	PLUGBOARD
CS206	POLLING
CS207	PRECISION
CS208	PRIORITY
	PROCESSOR SEE CPU
CS209	PROGRAM
CS210	PROGRAMMING
CS211	PUNCH
CS212	QUICKTRAN
CS213	QUEUING THEORY
CS214	RANDOM ACCESS
CS215	NUMBER
CS216	REAL TIME
CS217	RECORD
CS218	REDUNDANCY
CS219	REGISTER
CS220	REMOTE PROCESSING
CS221	REPRODUCER
CS222	RPG
CS223	RUN
CS224	SELECTING
CS225	SEQUENCE ACCESS
	CHECK SEE CHECK
CS226	SERIAL ACCESS
CS227	SHIFT
CS228	SIGN
CS229	SIGNAL
CS230	SIMPLEX
CS231	SIMULATION
CS232	SOFTWARE
CS233	SORTER
CS234	SOURCE DOCUMENT
	PROGRAM SEE PROGRAM
CS235	STATEMENT
CS236	STRUCTURE PROGRAM
CS237	STORAGE
CS238	STORED PROGRAM
CS239	SUBROUTINE
CS240	SUPERVISOR PROGRAM
CS241	SUPPRESSION
CS242	SWITCHING
CS243	SYNCHRONOUS SYSTEM
CS244	SYSTEM
CS245	ANALYSIS
CS246	DESIGN
	FLOWCHART SEE FLOWCHART
	OPERATING SEE OPERATING SYSTEM

รหัส	KEYWORD
CS247	TABLE LOOK-UP
CS248	TAPE
CS249	DRIVE
CS250	TELEPROCESSING
CS251	TERMINAL
CS252	TEST ROUTINE
CS253	THIN FILM
	THROUGHPUT SEE OUTPUT
CS254	TIME SHARING
CS255	TRACE ROUTINE
CS256	TRANSMISSION
CS257	TREE
CS258	TRUNCATE
CS259	UNCONDITIONAL TRANSFER
CS260	UNIT RECORD
CS261	UPDATE
CS262	UTILITY PROGRAM
CS263	VARIABLE
CS264	VERIFIER
CS265	VIRTUAL STORAGE
CS266	WORD
CS267	X PUNCH SEE PUNCH
CS268	XY PLOTTER SEE PLOTTER
CS269	Y PUNCH SEE PUNCH
CS270	ZONE BIT
	ZONE PUNCH SEE PUNCH

## ประวัติการศึกษา

ผู้เขียนวิทยานิพนธ์ นายวรารุณ เครือสินธุ์  
 วุฒิกการศึกษาปริญญาเศรษฐศาสตรบัณฑิต สาขาสถิติเศรษฐกิจ  
 (หลักสูตรภาษาอังกฤษ) มหาวิทยาลัยธรรมศาสตร์  
 ปีการศึกษา 2514

ตำแหน่งปัจจุบัน อาจารย์ตรี ศูนย์คอมพิวเตอร์ศาสตร์ บัณฑิตวิทยาลัย  
 จุฬาลงกรณ์มหาวิทยาลัย