

HEALTH CENTER PROJECT
SPRING QUARTER 1984

Analysis for a computer application
to assist in the handling of medical records

submitted by: Sharon R. Menken
to: Dr. C. Fuelling
for: ID 499 / Creative Project

*Accepted 5-21-84
Alvin Fuelling*

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PROJECT PURPOSE AND DESCRIPTION

In the fall of 1983, a team of four computer science students began studying the record-keeping system of the Ball State Health Center. The purpose of that study, conducted for a Systems Analysis class, was to propose an automated system to handle the medical records.

Inspired in part by that study, this project was undertaken in the winter of 1983-84; the bulk of the project was done during the spring quarter of 1984 as an Honors College creative project. This project describes a computer application which would facilitate one major phase of the record handling, that of the matriculates' health history/physical report forms.

Every undergraduate student at Ball State is required to have a health history and report of physical examination on file at the BSU Health Center. These forms are mailed or hand-delivered to the Health Center by matriculating students each quarter. If a student fails to submit this form, a "Hold" is placed on his school records until his health forms are received. About the third week of each quarter, the Health Center receives a computer-printed listing of all newly-enrolled students. The medical records clerks go through this list, checking in the filing cabinets for each name on the list to see whether or not a health history form has been received. When it is discovered that no health history is on file for a student, that student's name is added to a list from which the clerks type letters notifying the student, advisors, and registrar of a "Hold" on the student's records. The current procedure for identifying and

notifying students regarding health history forms is a time consuming, ongoing activity which occupies the medical records clerks for many weeks each quarter.

This project presents the analysis for a computer solution to the above-described situation. The "solution" is to create a field in each student's area of the student data base (which resides on the IBM computer and operates under CICS). This field would be filled with a year/month date when the student's health history form is received by the Health Center. A quarterly check would be made, and a computer listing would be produced presenting the names of all students who are enrolled at Ball State and who have not yet turned in their required medical forms. Output from this program would also be the "Hold" notice letters, in triplicate, and the mailing labels for these letters.

The purpose of this project is to save time for the medical records clerks, freeing them to do the other work required of them. The computer data-entry required for this application would be done by the medical records clerks via terminals which will reside in their office area. Reports would be produced at the University Computing Services location and be delivered to the BSU Health Center.

HEALTH CENTER PROJECT PROPOSAL

This project consists of adding a field to the BSU Student Database. The field, which will be located in the "Applicant" segment, will be a date field. Initialized to all zeros, the field will be updated to a "YYMM" date by an on-line program (under CICS). Periodic batch programs will produce a report based upon the value of the date field (zeros or non-zeros).

The primary users will be the Medical Records Clerks of the BSU Health Center.

Actual implementation of this project and its programs is unlikely at the present time, according to University Computing Services. Nevertheless, this project will specify the specifications needed should the project be implemented at a later time.

Following are the tasks involved in accomplishing this project, and the estimated time required for each task:

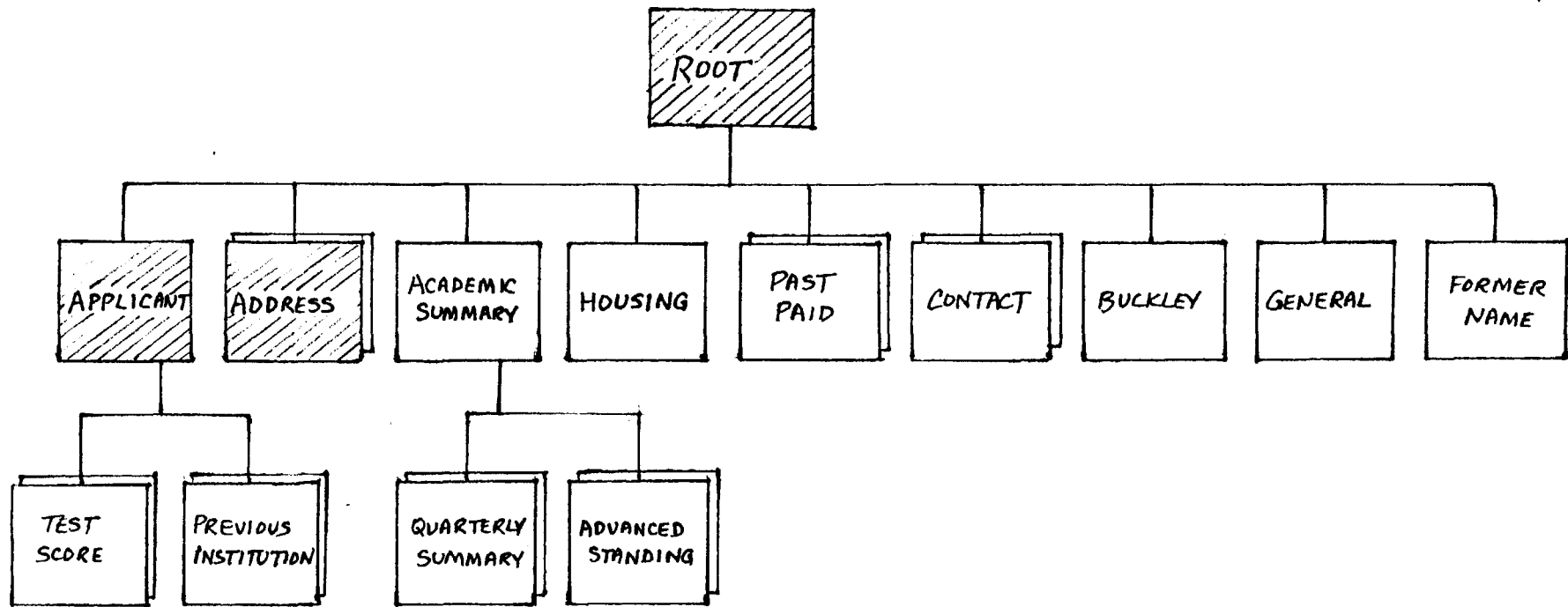
1. Define fields to be created 1 week
 Learn how they are entered into Database
2. Learn BSU Database procedures 2 weeks
 Screen design
 IMS programming (Leigh Mainwaring)
 On-line programming (Katy Neff)
3. Define COBOL programs 5 weeks
 1. On-line display 2 weeks
 screen design
 program logic
 2. On-line update (to enter fields) 2 weeks
 screen design
 program logic
 3. Batch report 1 week
 report layout
 program logic

The following will be submitted to Dr. Fuelling:

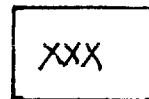
Early in the quarter: Project Proposal
 Goals outlined

Midterm: Status Report

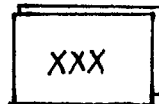
Final: Screen Layout Descriptions
 Program Specifications



THE ABOVE DIAGRAM SHOWS THE ORGANIZATION OF THE BSU STUDENT DATABASE.



Indicates a segment.



Indicates the possible multiple occurrence of a segment.



Shading indicates the segments that are accessed by this application. All other segments are 'invisible' to these programs.

ON-LINE UPDATE PROGRAM

BALL STATE UNIVERSITY COMPUTING SERVICES
PROGRAM DESIGN SPECIFICATIONS

PGM NUMBER: HSV8000
PGM NAME: HISTORY RECEIVED
PGM REPLACES: NONE
SYSTEM: HEALTH SERVICES
ACCOUNT #:
S&P#: N/A
DATE ASSIGNED: 4/4/84
DATE DUE: 5/19/84
PROGRAMMER: S. MENKEN
ANALYST: S. MENKEN
LANGUAGE: COBOL
PGM TYPE: MAINLINE
PURCHASED: NO

IMS INFO.....
DATA BASE: STUDENT DATABASE
SEGMENT: SSMSPACK, SSMSPAFF
SSA: ZSMSPACK, ZSMSPAFF
INDEX: ID NUM
PROCESS: ZSMSPACK USES GET; ZSMSPASS USES GET AND REPLACE

HSV2800 (CALLED BY TRANSACTION CODE "HHIN") RECEIVES A SOCIAL SECURITY NUMBER (STUDENT ID NUMBER), DISPLAYS THE CORRESPONDING STUDENT'S NAME, STUDENT STATUS (BOTH FROM THE ROOT SEGMENT), AND THE CURRENT HEALTH-HISTORY DATE (FROM THE APPLICANT SEGMENT). THE PROGRAM ALLOWS THE USER TO CHANGE THE DATE FIELD.

INPUT FILES: NONE
OUTPUT FILES: NONE
REPORTS: NONE

* MAINLINE *

RECEIVE MAP

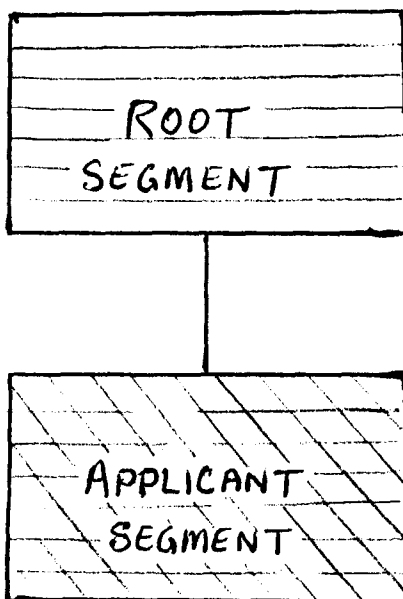
CHECK INPUT

```

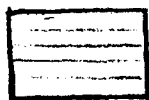
:
:   IF INVALID STUDENT ID NUMBER, DISPLAY ERROR-MESSAGE
:
:   IF CALL-LINE ONLY COMES IN (TRANSACTION CODE + SSN) THEN....
:   :   "GU" TO LOCATE STUDENT RECORD ROOT SEGMENT
:   :   "GNP" TO GET APPLICANT SEGMENT
:   :   BUILD SCREEN (SHOWS TRANSACTION CODE, SSN, NAME,
:   :   :   STATUS, CURRENT DATE)
:   :   SEND SCREEN
:   :.....RETURN TO CICS
:
:   IF CALL-LINE AND DATE COMES IN (TRANSACTION CODE + SSN +
:   :   YMM) THEN....
:   :   "GU" TO LOCATE STUDENT RECORD ROOT SEGMENT
:   :   "GHNP" TO GET AND HOLD APPLICANT SEGMENT
:   :   "REPL" TO UPDATE HEALTH-HISTORY-DATE
:   :   BUILD SCREEN (SHOWS TRANSACTION-CODE, SSN, NAME,
:   :   :   STATUS, OLD DATE, NEWLY-ENTERED DATE)
:   :   SEND SCREEN
:   :.....:.....RETURN TO CICS

```

ERROR-MESSAGE: "THERE IS NO STUDENT ON FILE WITH THIS SSN"



THIS IS THE VIEW OF THE STUDENT DATABASE SEEN BY THE ON-LINE UPDATE PROGRAM (HSV8000)



INDICATES "GET" PROCESS USED



INDICATES "REPLACE" PROCESS USED

HSV 8000 1 1
S. MENKEN 5/9/84

HHIN 999999999

NAME: _____ / STATUS: _____

CURRENT HEALTH-HISTORY-DATE: _____

NEW DATE: _____

>>>> _____
user message displayed here

BATCH REPORT PROGRAM

BALL STATE UNIVERSITY COMPUTING SERVICES
PROGRAM DESIGN SPECIFICATIONS

PGM NUMBER: HSV1000
PGM NAME: MATRIC HISTORY CHECK
PGM REPLACES: NONE
SYSTEM: HEALTH SERVICES
ACCOUNT #:
S&P#: N/A
DATE ASSIGNED: 4/4/84
DATE DUE: 5/18/84
PROGRAMMER: S. MENKEN
ANALYST: S. MENKEN
LANGUAGE: COBOL
PGM TYPE: MAINLINE
PURCHASED: NO

IMS INFO.....
DATA BASE: STUDENT DATABASE
SEGMENT: SSMSFACT, SSMSFAPP, SSMSPADR
SSA: ZSMSFACT, ZSMSFAPP, ZSMSPADR
INDEX: ID NUM
PROCESS: GET

HSV1000 reads the Student Database "Root" and "Applicant" Segments. The program checks the pay indicator field and, if a student has paid for the current quarter or term, checks the health-history date field. A report is printed of all students paid AND with zeros only in the health-history date field. (Zeros are the initial value of this field.)

INPUT FILES: NONE
OUTPUT FILES: NONE
REPORTS: MATRIC REPORT
 DDNAME: //POLIST
 FORMS: R 1402
HOLD LETTER
 DDNAME: //POLETTER
 FORMS: (3-part)
MAILING LABELS
 DDNAME: //POLABELS
 FORMS:

* MAINLINE *

INITIALIZE COUNT = ZERO
NEW-REPORT-FLAT: 'YES' = TRUE, 'NO' = FALSE

SORT MATRIC-REPORT ASCENDING ON LAST-NAME
ASCENDING ON FIRST-NAME
INPUT PROCEDURE --See below
OUTPUT PROCEDURE --See below

INPUT PROCEDURE.

READ STUDENT RECORD USING 'GN' COMMAND
:-----CHECK STUDENT STATUS
: IF STATUS = 'S' (indicating a current paid student)
: : GET APPLICANT SEGMENT USING 'GNP'
: : READ HEALTH-HISTORY-DATE FIELD
: : IF HEALTH-HISTORY-DATE = ZEROS
: : : READ CAMPUS-ADDRESS USING 'GNP'
: : : IF NO CAMPUS-ADDRESS
: : : : READ PERMANENT-ADDRESS USING 'GNP'
: : : : MOVE PERMANENT-ADDRESS TO ADDRESS
: : : : .ELSE MOVE CAMPUS-ADDRESS TO ADDRESS
: : : READ HOLD-FIELD (IN ROOT SEGMENT)
: : : MOVE NAME, SSN, ADDRESS, HOLD-FLAT TO REPORT-LINE
: : :...:.....RELEASE REPORT-LINE TO SORT ROUTINE
:
: READ NEXT STUDENT
:.....REPEAT UNTIL END OF DATABASE

OUTPUT PROCEDURE.

PERFORM HEADER-1 UNTIL END-OF-FILE

HEADER-1.

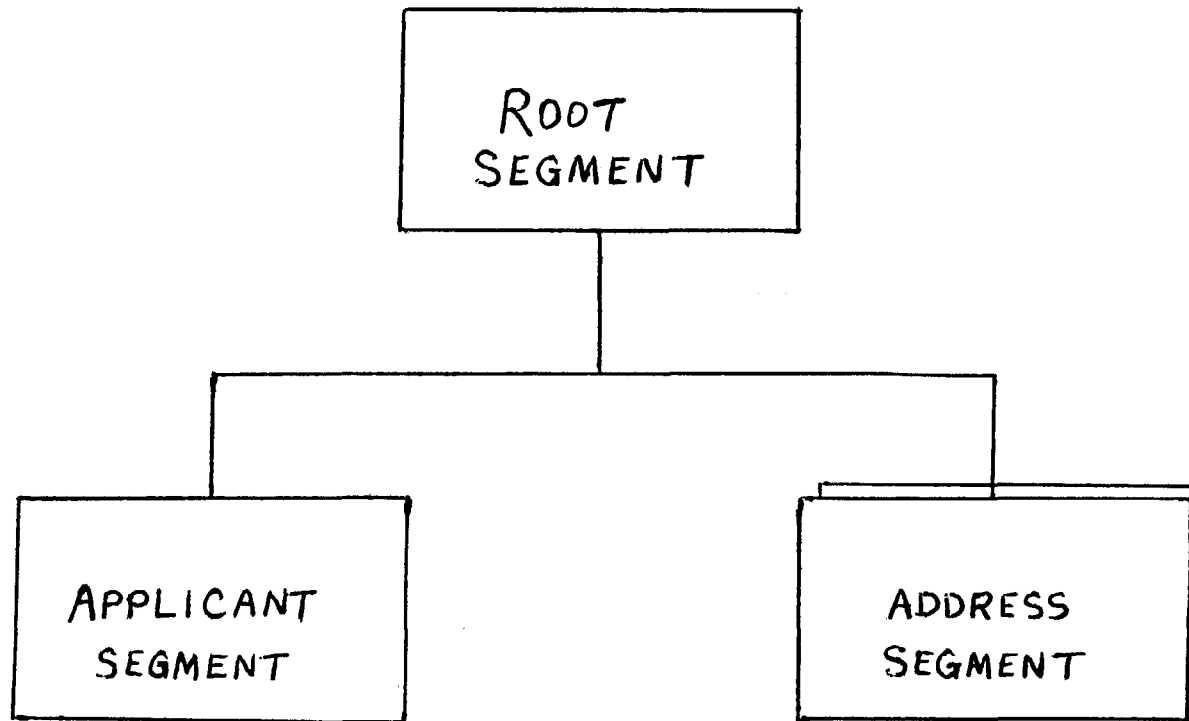
WRITE HEADER-1-LINE
IF NEW-REPORT PERFORM HEADER-2
PERFORM REPORT-BODY UNTIL COUNT = 45
MOVE ZERO TO COUNT

HEADER-2.

WRITE HEADER-2-LINE
MOVE 'NO' TO NEW-REPORT-FLAG

REPORT-BODY.

WRITE REPORT-LINE
ADD 1 TO COUNT



THIS IS THE VIEW OF THE STUDENT DATABASE SEEN BY THE BATCH PROGRAM (HSV1000)

ALL SEGMENTS SHOWN USE ONLY THE "GET" PROCESS

HSV 1000

1
5/9/84

MATRIC HISTORY CHECK
SHARON MENKEN

MATRIC REPORT

BALL STATE UNIVERSITY -- WOOD HEALTH SERVICE
HSV1000

NO MEDICAL H

[last name] [first name] [^{initial}] [Sec. Sec. no.] []

APPENDIX

INSTRUCTIONS FOR USING ON-LINE UPDATE PROGRAM

CLEAR SCREEN

ENTER TRANSACTION CODE "HHIN", THEN STUDENT'S SOCIAL SECURITY NUMBER (STUDENT ID NUMBER) AND PRESS <ENTER>

ENTER THE CURRENT "YYMM" DATE AND PRESS <ENTER>

FOR STUDENT WITH NO OR WITH UNKNOWN SOCIAL SECURITY NUMBER:

ENTER TRANSACTION CODE "SNAM" AND PRESS <ENTER>; THIS RUNS THE PROGRAM TO FIND STUDENT ID NUMBERS WHEN THE STUDENT'S NAME IS KNOWN.

ID 499 CREATIVE PROJECT MIDTERM STATUS REPORT

1. Learned about the structure (hierarchical organization) of the BSU Student Database.
2. Defined new field to be created in DB:
 - A. Date field.
 - B. Will be located in "Applicant" segment for each student.
 - C. Will be entered into DB using "GET" and "INSERT" commands.
3. Wrote program specifications for Batch report.

