For the past seven years the Division of Financial Aid at Purdue University has run a standardized set of annual tables to produce demographic information on financial aid recipients. All the change in financial aid policy brought about during the Reagan administration has created an increased interest in the impact of financial aid on the student population. Several schools within the University expressed interest in knowing the types and amount of aid their students received and how the figures compared to those of other schools. As a result, last year the annual tables were broken down by school for the first time. This proved to be CPU expensive. The Division of Financial Aid made a decision to continue to provide this service to the schools so a new approach was desired. The programs had been written in RAMIS. SAS seemed a natural choice for reprogramming as past experience had shown up to 80% decrease in CPU when RAMIS programs were converted to SAS. This paper discusses the decision, change, and results of the conversion of the annual tables from RAMIS to the SAS System.

Purdue University in West Lafayette, Indiana, has a student population of approximately 33,000 students. Of those, 14,500 students receive some type of financial aid. The Reagan administration, in an effort to decrease government spending, tightened up regulations determining aid eligibility. Beginning last spring, many students received smaller amounts of aid and some received no aid at all. This caused concern among both students and University administrators and resulted in increased interest in financial aid. Several schools within Purdue (i.e. School of Engineering, School of Science) requested information from the Division of Financial Aid (DFA) regarding students enrolled in their respective schools. These schools wanted to know the type of aid and how much their students were receiving.

DFA has run a standardized set of annual tables which produce demographic information on financial aid recipients for the past seven years. These tables break down aid counts and dollars by characteristics such as sex, race, year in school, and residency. In response to the schools' requests for information, the annual tables were broken down by school for the first time last year. The tables had previously been done in RAMIS. In order to furnish the results in a timely manner the programs were simply modified to subgroup the information by school.
RESULTS

The improved appearance of the tables was a side benefit of using the TABULATE procedure. It was, however, the first thing that DFA staff members commented on when viewing the converted tables. The consensus was that the lines provided by the TABULATE procedure made following the tables much easier.

Clock time decreased by an average of 5.2%. DFA shares the computer with all other administrative offices so decreased execution time means increased probability that all jobs will be completed the night they are submitted.

The change in CPU time was the most impressive result. The average decrease in CPU time was 86.1% with a range of 62.3% to 93.3%. Using the initial cost analysis done as a basis for comparison, CPU costs decreased by approximately $750. Given that the programs will be run at least twice a year, savings to DFA in the future will be substantial.

SUMMARY

The decision to convert the RAMIS annual tables to SAS was well justified. The benefits were as follows:

1) The DFA programmer was able to make the conversion, thus eliminating the need to request programming time from the Administrative Data Processing Center. This resulted in several benefits: a) DFA was not dependent upon another office to complete the task; b) DFA could control the priority of the project; and c) the manhours needed to make the conversion were already included in the DFA budget as part of the programmer's salary so no outside charges were incurred.

2) The manhours expended to make the conversion were approximately twenty-five working hours. There are fourteen tables so time per table averaged out to be less than two hours. The savings realized by the decreased CPU time made up for the manhours "expense" with the first run of the tables.

3) The tables produced by the TABULATE procedure had a neater, more concise appearance which made them easier to read and, in some cases, eliminated a second page of output.

4) The substantial decrease in CPU time was by far the greatest benefit. DFA was able to save both their own resources and those of the University through decreased CPU time and decreased execution time.

SAS is a trademark of the SAS Institute, Inc., Cary, NC.

RAMIS is a trademark of On-Line Software International, Princeton, NJ.

For more information contact:
Diane Muffett
Division of Financial Aid
Room 240 ENAD
Purdue University
West Lafayette, IN 47907

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## Comparison of CPU and Execution Times - RAMIS to the SAS System

<table>
<thead>
<tr>
<th>Table (Aid by)</th>
<th>CPU</th>
<th>EXECUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RAMIS Minutes</td>
<td>SAS Minutes</td>
</tr>
<tr>
<td>1 Sex</td>
<td>7:52</td>
<td>0:51</td>
</tr>
<tr>
<td>2 Residency</td>
<td>8:51</td>
<td>0:36</td>
</tr>
<tr>
<td>3 Ethnic Group</td>
<td>9:42</td>
<td>0:52</td>
</tr>
<tr>
<td>4 Marital Status</td>
<td>7:53</td>
<td>0:52</td>
</tr>
<tr>
<td>5 Class</td>
<td>10:01</td>
<td>0:49</td>
</tr>
<tr>
<td>6 Dependency</td>
<td>9:55</td>
<td>1:41</td>
</tr>
<tr>
<td>7 Family Income-Undergrad Dependent</td>
<td>16:08</td>
<td>1:30</td>
</tr>
<tr>
<td>7B Family Income-All</td>
<td>12:30</td>
<td>1:30</td>
</tr>
<tr>
<td>8 Family Income-Undergrad Dependent Resident</td>
<td>16:31</td>
<td>1:18</td>
</tr>
<tr>
<td>7B Family Income-All Non-Resident</td>
<td>12:54</td>
<td>1:16</td>
</tr>
<tr>
<td>9 Family Income-Undergrad Dependent Non-Resident</td>
<td>15:54</td>
<td>1:28</td>
</tr>
<tr>
<td>9B Family Income-All Non-Resident</td>
<td>12:45</td>
<td>1:32</td>
</tr>
<tr>
<td>9B Federal Summary-Undergrad Dependent</td>
<td>2:39</td>
<td>1:00</td>
</tr>
<tr>
<td>10B Federal Summary-All</td>
<td>2:55</td>
<td>1:00</td>
</tr>
</tbody>
</table>

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### RAMIS table

**HEALTH SCIENCES**

**AID BY RESIDENCY**

**RUN DATE: 03/10/88**

**FOR THE PERIOD 1986-7**

<table>
<thead>
<tr>
<th>AID CATEGORY</th>
<th>TOTAL AWARDS</th>
<th>AMOUNT</th>
<th>IN-STATE AWARDS</th>
<th>OUT-OF-STATE AWARDS</th>
<th>FOREIGN AWARDS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEDERAL GRANTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pell Received</td>
<td>161</td>
<td>$274,497.00</td>
<td>141</td>
<td>$193,057.00</td>
<td>20</td>
<td>$21,400.00</td>
</tr>
<tr>
<td>SEOG</td>
<td>79</td>
<td>$72,099.00</td>
<td>60</td>
<td>$48,039.00</td>
<td>19</td>
<td>$28,060.00</td>
</tr>
<tr>
<td>F. U. Fee Remissions</td>
<td>112</td>
<td>$93,455.85</td>
<td>84</td>
<td>$64,310.45</td>
<td>27</td>
<td>$24,092.00</td>
</tr>
<tr>
<td>P. U. Scholarships</td>
<td>45</td>
<td>$11,930.00</td>
<td>36</td>
<td>$25,870.00</td>
<td>9</td>
<td>$8,060.00</td>
</tr>
<tr>
<td>Alumni Scholarships</td>
<td>34</td>
<td>$12,785.00</td>
<td>25</td>
<td>$14,005.00</td>
<td>9</td>
<td>$8,780.00</td>
</tr>
<tr>
<td>Outside Awards</td>
<td>281</td>
<td>$177,449.16</td>
<td>244</td>
<td>$165,559.16</td>
<td>17</td>
<td>$11,890.00</td>
</tr>
<tr>
<td>SEACI Grants</td>
<td>113</td>
<td>$233,837.00</td>
<td>133</td>
<td>$113,837.00</td>
<td>0</td>
<td>$0.00</td>
</tr>
<tr>
<td>SEACI Scholarships</td>
<td>22</td>
<td>$11,000.00</td>
<td>22</td>
<td>$11,000.00</td>
<td>0</td>
<td>$0.00</td>
</tr>
<tr>
<td>SEACI Other</td>
<td>7</td>
<td>$6,055.00</td>
<td>8</td>
<td>$5,695.00</td>
<td>2</td>
<td>$360.00</td>
</tr>
<tr>
<td>Other Soc/Grants/Benefits</td>
<td>0</td>
<td>$13,677.00</td>
<td>6</td>
<td>$13,677.00</td>
<td>0</td>
<td>$0.00</td>
</tr>
<tr>
<td>Loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical</td>
<td>94</td>
<td>$43,489.00</td>
<td>77</td>
<td>$49,295.00</td>
<td>17</td>
<td>$17,720.00</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>1</td>
<td>$330.00</td>
<td>1</td>
<td>$330.00</td>
<td>0</td>
<td>$0.00</td>
</tr>
<tr>
<td>SEOG Received</td>
<td>169</td>
<td>$339,579.00</td>
<td>141</td>
<td>$218,109.00</td>
<td>48</td>
<td>$212,470.00</td>
</tr>
<tr>
<td>P. U. Loans</td>
<td>15</td>
<td>$14,320.00</td>
<td>17</td>
<td>$2,540.00</td>
<td>13</td>
<td>$13,800.00</td>
</tr>
<tr>
<td>PLUS</td>
<td>32</td>
<td>$117,467.00</td>
<td>27</td>
<td>$101,467.00</td>
<td>5</td>
<td>$16,000.00</td>
</tr>
<tr>
<td>Employment</td>
<td>55</td>
<td>$65,733.00</td>
<td>39</td>
<td>$47,713.00</td>
<td>16</td>
<td>$18,020.00</td>
</tr>
<tr>
<td>Other Employment</td>
<td>124</td>
<td>$162,367.00</td>
<td>96</td>
<td>$119,747.00</td>
<td>28</td>
<td>$43,620.00</td>
</tr>
</tbody>
</table>

| TOTAL         | 1,481        | $1,457,616.01| 1,248           | $1,303,820.61       | 232            | $548,652.00 |

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DATA FY:
    INFILE FYAWARDS:
    INPUT @1 (FUND SID AMOUNT) ($5. $9. 10.):
    IF AMOUNT<10 THEN DELETE:
DATA PI(KEEP~SID
RS CLS SCH) :
    INFILE PRSINFEX:
    INPUT @2 SID $9. @284 (SCH CLS) ($3. $2.) @383 RS $1.:
PROC SORT DATA=FY;
    BY SID;
PROC SORT DATA=PI;
    BY SID;
DATA FY:
    MERGE FY(IN=INFY) PI;
    BY SID;
    IF INFY:
    PROC DELETE DATA=PI;
DATA FY:
    SET FY;
    BY SID:
    IF AMOUNT<0 THEN AMOUNT=0;
    MASK1=SUBSTR(FUND,1,1);
    MASK2=SUBSTR(FUND,1,2);
    MASK3=SUBSTR(FUND,1,3);
    CLSMASK=SUBSTR(CLS,1,1);
    SCHMASK=SUBSTR(SCH,2,2);
    IF MASK1='G' THEN MAIN=1;
    ELSE IF MASK2='FN' OR MASK2='FS' OR MASK2='FP' THEN MAIN=2;
    ELSE IF MASK1='S' THEN MAIN=3;
    ELSE IF MASK1='A' THEN MAIN=4;
    ELSE IF MASK1='O' THEN MAIN=5;
    ELSE IF MASK1='T' THEN MAIN=6;
    ELSE IF MASK1='M' THEN MAIN=7;
    ELSE IF MASK1='L' THEN MAIN=8;
    ELSE IF MAIN=10 THEN DELETE;
    IF MAIN=10 THEN DELETE;
    IF FUND='GX200' OR FUND='GX201' THEN SUB=1;
    ELSE IF FUND='G7205' THEN SUB=2;
    ELSE IF FUND='T8635' THEN SUB=5;
    ELSE IF FUND='T8634' THEN SUB=6;
    ELSE IF FUND='LF177' THEN SUB=8;
    ELSE IF SUBSTR(SCH,2,1)='E' THEN SUB=10;
    ELSE IF MASK3='LXG' THEN SUB=11;
    ELSE IF MASK3='LXS' THEN SUB=12;
    ELSE IF MASK3='LAP' THEN SUB=13;
    ELSE IF MASK2='LP' THEN SUB=14;
    ELSE IF MASK2='LO' THEN SUB=15;
    ELSE IF MASK1='W' THEN SUB=16;
    ELSE IF SCH='T' OR SUBSTR(SCH,2,1)='E' OR SUBSTR(SCH,3,1)='E'
    THEN SCHOOL=5;
    ELSE IF SCH='T' OR SUBSTR(SCH,2,1)='T' OR SUBSTR(SCH,3,1)='T'
    THEN SCHOOL=6;
    ELSE IF SCH='CFS' THEN SCHOOL=7;

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ELSE IF SCH='GR' THEN SCHOOL=8;
ELSE IF SCH='S' THEN SCHOOL=9;
ELSE IF SCH='M' THEN SCHOOL=10;
ELSE IF SCH='UNC' THEN SCHOOL=11;
ELSE IF SCH='VM' OR SCH='V' THEN SCHOOL=12;
ELSE SCHOOL=13;
RES:
IF RS='0' THEN RES='IN'; ELSE IF RS='1' THEN RES='OUT';
ELSE RES='FOREIGN';
PROC SORT DATA=FY;
BY SCH MAIN SUB;
PROC FORMAT;
VALUE MN 1='FEDERAL GRANTS'
2='P.U. FEE REMISSIONS'
3='P.U. SCHOLARSHIPS'
4='ALUMNI SCHOLARSHIPS'
5='OUTSIDE AWARDS'
6='SSAC'
7='OTHER SCH/GRANTS/BENEFITS'
8='LOANS'
9='EMPLOYMENT'
10='NOT INC';
VALUE SB 1='PELL RECOMMENDED'
2='PELL RECEIVED'
3='SEOG'
4='GRANTS'
5='SCHOLARSHIPS'
6='TEACHER TRAINING'
7='NDSL'
8='NURSING'
9='PHARMACY'
10='VET. MEDICINE'
11='GSL RECOMMENDED'
12='GSL RECEIVED'
13='PLUS'
14='P.U. LOANS'
15='OTHER LOANS'
16='WORK STUDY PROGRAM'
17='OTHER EMPLOYMENT'
18='P.U. FEE REMISSIONS'
19='P.U. SCHOLARSHIPS'
20='ALUMNI SCHOLARSHIPS'
21='OUTSIDE AWARDS';
VALUE SC 1='HUMANITIES'
2='HEALTH SCIENCES'
3='AGRICULTURE'
4='PHARMACY'
5='ENGINEERING'
6='TECHNOLOGY'
7='CONSUMER AND FAMILY SCIENCE'
8='GRADUATE'
9='SCIENCE'
10='MANAGEMENT'
11='UNCLASSIFIED'
12='VETERINARY MEDICINE'
13='UNKNOWN';
PROC TABULATE DATA=FY;
CLASS MAIN SUB RES SCHOOL;
VAR AMOUNT UNDUP;
FORMAT MAIN MN. SUB SB. SCHOOL SC.;
TABLE ALL SCHOOL, (MAIN*SUB) ALL,
(RES ALL)*(AMOUNT*(N+F=COMMA8,
SUM=F=COMMA10.2))/ MISSTEXT='O';
TABLE ALL SCHOOL, (RES ALL)*UNDUP*N;
TITLE 'AID BY RESIDENCY';
RUN;