

Active Students Filing an Intent to Graduate at the University of Central Florida (UCF)

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ABSTRACT

SAS® software is about improving ourselves as SAS developers, and as a consequence, is about always improving user experience. At Institutional Knowledge Management (IKM), official source of UCF institutional data, we strive in providing accurate, insightful, and actionable information, timely, to the university and the public. This paper will present you with a project converted from SAS® Enterprise Guide® to SAS® Stored Processes allowing users to select specific criteria via cascading prompts. These SAS Stored Processes are available through our SAS® Information Delivery Portal, providing a daily snapshot of the data on demand, instead of manually generating these reports involving many steps in the process. Challenges regarding the application of the new source of data being used are briefly addressed.

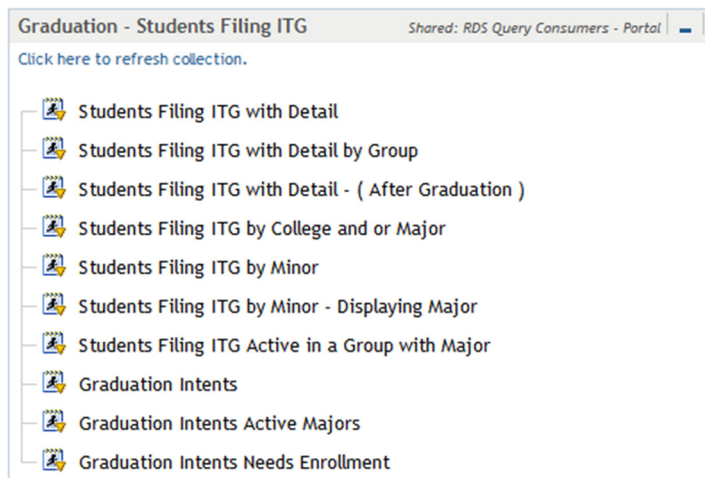
INTRODUCTION

UCF's reporting needs are as varied as any other academic organization. At UCF, Institutional Knowledge Management (IKM) is tasked with providing actionable information regarding our University to internal and external customers alike. The primary resource to facilitate all of UCF's reporting needs is our SAS® Business Intelligence (SAS BI) environment.

Within SAS BI, SAS Enterprise Guide (SAS EG) is one of our primary development tools. Ad-hoc requests are most likely to be answered with SAS EG projects. On the other hand, consumers who are looking to answer recurrent questions use our SAS Stored Processes on demand. Over the last eight years, more than 250 stored processes have been created to better serve a very specific internal demand of data across campus. Questions and data needs that evolve over time and become recurrent requests, naturally guide you to transform EG projects into stored processes that users could execute at any given time.

CASE OF STUDY

Filling an intent to graduate (ITG) is a common task in education. Years ago, varieties of stored processes were created to supply this demand for detailed information (see screen capture, Display 1 below).



Display 1. Student Filing ITG portlet

ITG questions evolved over time. Questions which were not answered by the initial set of queries were raised. Not only detailed information but also summarized data reports were needed by certain units on campus. In this regard, a couple of SAS EG projects were created (years apart) to answer to this need. For this development, common grounds were found in the original logic implemented in both EG projects, so, it was easy to conceive combining them somehow. Usually, the purpose of any program we create is to answer one or multiple questions at a time, and by combining them, we would be able to optimize the process to serve multiple units' needs.

CHALLENGES

'Enrolled students filling an ITG' question turned into 'active¹ students filling an ITG' at the time these EG projects were being transformed into stored processes. This change in definition played a key role because it completely altered one of the data sources being used. Production was delayed a few weeks since this new table to be used as a source table was being built at the time.

Secondly, units on campus getting these reports originally received PDF files that were generated by those EG projects. In this case, an output in Microsoft Excel (excel) would allow a better design in providing the data more efficiently. Changing the output could be a hassle for some users and a challenge for developers.

Finally yet importantly, to create a free maintenance project.

DESIGN & IMPLEMENTATION

While validating the data in the old EG projects, many queries were providing the correct results, while other queries had outdated information that did not align with the new requirements. Many issues were solved by changing to different source tables but identifying active students with the tables we had was not a clean process.

The need of a new source table was mandatory, a need that was shared by other projects at that point in time. This data source table was already in development by another member of our team. The purpose of the new table was to provide daily updated information out of our main transaction data store we have on campus. The table was implemented on this project while still in development. Please note that the content of that table is not pertinent to this paper.

After rebuilding the two original EG projects into one, adding the new data source table, and adjusting to all new requirements, we were able to extract the code from each query to build the SAS program that creates a common source table called 'ITG_DEGREE' used to feed the reports required by different units on campus.

ITG_DEGREE is being called from other two SAS programs that generate the reports. These SAS programs are at the same time, being called by the two stored processes that users can run on demand through our SAS Information Delivery Portal to get their excel reports.

Please find below a sample of the code found on the ITG_REPORT.sas program that generates the first excel tab named 'ITG by County'. Please note the include statement that calls the ITG_BUILD.sas that builds the ITG_DEGREE table.

```
/* -----  
IKM43964. ITG -PS (ITG Report -Former IR18006PR)  
----- */  
/*Get Today's Date*/  
data _null_;  
    call symput('today',put(today(),mmdyy10.));  
run;
```

¹ Active is defined by having an active program status and enrollment starting from two terms prior to the current term.

```

data _null_;
%include "D:\SAS_DATA\UCFPublic\UCF\StoredProcess\IKM43964_ITG_BUILD.sas";
run;

data _null_;
    rc = stpsrv_header('Content-type','application/vnd.ms-excel');
    rc = stpsrv_header('Content-disposition','attachment;
filename=IKM43964_ITG.xlsx');
run;

ODS LISTING CLOSE;
ODS EXCEL FILE=_webout style=Seaside;

%LET _CLIENTTASKFILTER = TYPE = 'Intent';
TITLE;
TITLE1;
TITLE2;
FOOTNOTE;
FOOTNOTE1;
FOOTNOTE2;
FOOTNOTE3;

TITLE;
TITLE1 "Potential Degrees Granted by County";
TITLE2 "Based on Students Filing an Intent to Graduate";
FOOTNOTE;
FOOTNOTE1 "Note: Intent to graduate data is refreshed every morning at 8
A.M. Active Students defined as students who have had enrollment in any of
the last three major terms including the current term.";
FOOTNOTE2 "IKM43964. Source: PeopleSoft. Institutional Knowledge
Management";
FOOTNOTE3 "Report Generated: &today";

ODS EXCEL OPTIONS (SHEET_NAME="ITG by County" embedded_footnotes='yes'
embedded_titles='on');

PROC TABULATE
DATA=WORK.ITG_DEGREE;
    WHERE( TYPE = 'Intent');
    CLASS County_Descr /      ORDER=UNFORMATTED MISSING;
    CLASS Degree_Level /      ORDER=UNFORMATTED MISSING;
    CLASS Term /              ORDER=UNFORMATTED MISSING;
    TABLE /* Row Dimension */
Term={LABEL="Expected Graduate Term"}*(
    County_Descr={LABEL=""}
    ALL={LABEL="Total (ALL)"}
STYLE={BACKGROUND=#FFFF99})*{STYLE={BACKGROUND=#FFFF99}}),
/* Column Dimension */
Degree_Level={LABEL="Degree Level"}*
N={LABEL=""}*F=COMMA7.
ALL={LABEL="Total"}*
N={LABEL=""}*F=COMMA7.*{STYLE={BACKGROUND=#FFFF99}}
;
;

RUN;
RUN; QUIT;

```

Similarly, please find below a sample of the code used in the second SAS program to create the excel tab 'ITG-Degree' which displays degrees granted and ITG in a specific academic year by College. Also note the include statement that calls the ITG_BUILD.sas program that creates the ITG_DEGREE table. For this report, users are prompted to select one College. Degree level is default to all degrees but it also can be adjusted by the user who could select between Bachelor, Master's, Specialist or Doctoral degree levels. Please find the 'where' clause below where these prompts are being used.

```

/* -----
IKM43964. ITG -PS (ITG & DEGREE Report -Former IR44065)
----- */

/*Get Today's Date*/
data _null_;
    call symput('today',put(today(),mmddyy10.));
run;

data _null_;
%include "D:\SAS_DATA\UCFPublic\UCF\StoredProcess\IKM43964_ITG_BUILD.sas";
run;

data _null_;
    rc = stpsrv_header('Content-type','application/vnd.ms-excel');
    rc = stpsrv_header('Content-disposition','attachment;
filename=IKM43964_ITG_DEGREE.xlsx');
run;

PROC SQL;
    CREATE TABLE WORK.ITG_DEGREE_F AS
    SELECT t1.EMPLID,
           t1.TYPE,
           t1.ACAD_YEAR_AWARDED,
           t1.ACAD_CAREER,
           t1.ACAD_GROUP,
           t1.ACAD_GROUP_DESCR,
           t1.ACAD_ORG,
           t1.ACAD_ORG_DESCR,
           t1.ACAD_PLAN,
           t1.ACAD_PLAN_DESCR,
           t1.ACAD_SUB_PLAN,
           t1.ACAD_SUBPLAN_DESCR,
           t1.Degree_Level,
           t1.Term,
           t1.County_Descr,
           t1.Gender,
           t1.Ethnicity
    FROM WORK.ITG_DEGREE t1
    WHERE (t1.ACAD_GROUP LIKE "&College") AND (t1.Degree_Level LIKE
"&Degree_Level");
QUIT;

ODS LISTING CLOSE;
ODS EXCEL FILE=_webout style=Seaside;

TITLE;
TITLE1;

```

```

FOOTNOTE;
FOOTNOTE1;
FOOTNOTE2;
FOOTNOTE3;

TITLE;
TITLE1 "Degrees Granted and/or Intents to Graduate on File -
#byval(ACAD_GROUP_DESCR)";
FOOTNOTE;
FOOTNOTE1 "Note: Intent to graduate data is refreshed every morning at 8
A.M. Counts by Major. Students in multiple majors are counted multiple
times.";
FOOTNOTE2 "IKM43964. Source: Degree Fact (Degrees) and PeopleSoft
(Intents). Institutional Knowledge Management";
FOOTNOTE3 "Report Generated: &today";

OPTIONS NOBYLINE;

ODS EXCEL OPTIONS (SHEET_NAME="Degree-ITG" embedded_footnotes='yes'
embedded_titles='on');

PROC TABULATE
DATA=WORK.ITG_DEGREE_F;
BY ACAD_GROUP_DESCR;
  CLASS TYPE / ORDER=UNFORMATTED MISSING;
  CLASS ACAD_YEAR_AWARDED / ORDER=UNFORMATTED MISSING;
  CLASS ACAD_CAREER / ORDER=UNFORMATTED DESCENDING MISSING;
  CLASS ACAD_GROUP_DESCR / ORDER=UNFORMATTED MISSING;
  CLASS ACAD_ORG_DESCR / ORDER=UNFORMATTED MISSING;
  CLASS ACAD_PLAN_DESCR / ORDER=UNFORMATTED MISSING;
  CLASS Degree_Level / ORDER=UNFORMATTED MISSING;
  CLASS Term / ORDER=UNFORMATTED MISSING;
  TABLE /* Row Dimension */
ACAD_ORG_DESCR={LABEL="Department"}*
ACAD_CAREER={LABEL="Career"}*
Degree_Level={LABEL="Level"}*(
ACAD_PLAN_DESCR={LABEL=""}}
ALL={LABEL="Total"}
STYLE={BACKGROUND=#FFFF99})*{STYLE={BACKGROUND=#FFFF99}})
ALL={LABEL="Total (ALL)"}
STYLE={BACKGROUND=#CCFFCC})*{STYLE={BACKGROUND=#CCFFCC}},
/* Column Dimension */
ACAD_GROUP_DESCR={LABEL=""})*
TYPE={LABEL=""})*(
ACAD_YEAR_AWARDED={LABEL=""})*
Term={LABEL=""})*
N={LABEL=""})*F=COMMA7.
ALL={LABEL="Total"}
STYLE={BACKGROUND=#CCFFCC})*{STYLE={BACKGROUND=#CCFFCC}})*
N={LABEL=""})*F=COMMA7.)
;
RUN;
RUN; QUIT;

```

RESULTS

Screen captures, Display 2, Display 3, and Display 4 below show results for all three tabs of the ITG Report (Display 2 corresponds to the first block of code displayed above).

Potential Degrees Granted by County					
Based on Students Filing an Intent to Graduate					
Expected Graduate Term		Degree Level			
		Bachelor	Doctoral	Master's	Specialist
Summer 2018	No County on File	3	-	-	-
	Alachua	5	-	-	-
	Bay	6	-	-	-
	Bradford	1	-	-	-
	Brevard	74	-	2	-
	Broward	115	-	-	-
	Calhoun	2	-	-	-
	Charlotte	4	-	-	-
	Citrus	8	-	-	-
	Clay	7	-	-	-
	Collier	9	-	-	-
	Dade	40	-	3	-
	Duval	18	-	-	-
	Escambia	3	-	-	-
	Flagler	3	-	-	-
	Hardee	2	-	-	-
	Hernando	2	-	-	-
	Highlands	6	-	-	-
	Hillsborough	47	-	1	-
	Indian River	5	-	1	-
	Lake	39	-	3	-
	Lee	13	-	-	-
	Leon	6	-	2	-
	Levy	2	-	-	-
	Manatee	4	-	-	-
	Marion	11	-	1	-
	Martin	11	-	-	-
	Monroe	4	-	-	-
	Nassau	2	-	-	-
	Non-Florida	61	3	9	-
	Non-USA	2	-	-	-
	Okaloosa	2	-	-	-
	Orange	583	4	26	-
	Osceola	52	-	3	-
	Palm Beach	72	-	-	-
	Pasco	10	-	-	-
	Pinellas	26	-	-	-
	Polk	24	-	-	-
	Santa Rosa	2	-	-	-
	Sarasota	11	-	-	-
	Seminole	160	1	10	1
	St. Johns	14	-	-	-
	St. Lucie	25	-	1	-
	Suwannee	1	-	-	-
	Volusia	48	-	4	-
	Walton	1	-	-	-
	Total (ALL)	1,546	8	66	1

Note: Intent to graduate data is refreshed every morning at 8 A.M. Active Students defined as students who have had enrollment in any of the last three major terms including the current term.

IKM43964. Source: PeopleSoft. Institutional Knowledge Management

Report Generated: 08/17/2018

Display 2. ITG by County from ITG Report

Potential Degrees Granted by Ethnicity					
Based on Students Filing an Intent to Graduate					
Expected Graduate Term		Degree Level			
		Bachelor	Doctoral	Master's	Specialist
Summer 2018	American Indian/Alaska Native	4	-	-	-
	Asian	92	1	3	-
	Black/African American	204	-	8	-
	Hispanic/Latino	395	-	11	-
	Multi-racial	64	-	1	-
	Native Hawaiian/Other Pacific Islander	4	-	-	-
	Not Specified	8	-	2	-
	White	775	7	41	1
	Total (ALL)	1,546	8	66	1

Note: Intent to graduate data is refreshed every morning at 8 A.M. Active Students defined as students who have had enrollment in any of the last three major terms including the current term.

IKM43964. Source: PeopleSoft. Institutional Knowledge Management

Report Generated: 08/17/2018

Display 3. ITG by Ethnicity from ITG Report

Potential Degrees Granted by College
Based on Students Filing an Intent to Graduate

Expected Graduate Term		Degree Level				Total
		Bachelor	Doctoral	Master's	Specialist	
Summer 2018	College of Arts & Humanities	19	.	2	.	21
	College of Business Adm	399	.	.	.	399
	College of Educ & Human Perfrm	23	.	11	1	35
	College of Engr & Comp Sci	5	.	.	.	5
	College of Graduate Studies	.	.	1	.	1
	College of Health & Public Aff	24	.	16	.	40
	College of Medicine	77	.	1	.	78
	College of Nursing	6	.	.	.	6
	College of Optics & Photonics	2	.	.	.	2
	College of Sciences	585	8	34	.	627
	College of Undergrad Studies	170	.	.	.	170
	Rosen College Hospitality Mgmt	236	.	1	.	237
	Total (ALL)	1,546	8	66	1	1,621

Note: Intent to graduate data is refreshed every morning at 8 A.M. Active Students defined as students who have had enrollment in any of the last three major terms including the current term.

IKM43964. Source: PeopleSoft. Institutional Knowledge Management

Report Generated: 08/17/2018

Display 4. ITG by College from ITG Report

Screen captures, Display 5, and Display 6 below show results for two out of three tabs of the ITG-Degree Report (Display 5 corresponds to the second block of code displayed above). The third tab not being displayed breaks down the same information by Ethnicity.

Degrees Granted and/or Intents to Graduate on File - College of Arts & Humanities

				College of Arts & Humanities			
				Degree		Intent	
				2018-19 Summer 2018	Total	2018-19 Summer 2018	Total
Department	Career	Level					
Dean's Office CAH	GRAD	Doctoral	Texts and Technology PhD	2	2	.	.
			Total	2	2	.	.
English	UGRD	Bachelor	English BA	2	2	3	3
			Total	2	2	3	3
	GRAD	Master's	English MA	4	4	1	1
			Total	4	4	1	1
History	UGRD	Bachelor	History BA	3	3	7	7
			Total	3	3	7	7
	GRAD	Master's	History MA	5	5	.	.
			Total	5	5	.	.
Latin American Studies	UGRD	Bachelor	Latin American Studies BA	.	.	2	2
			Total	.	.	2	2
Modern Languages	GRAD	Master's	Teaching English(TESOL) MA	2	2	.	.
			Total	2	2	.	.
Music	UGRD	Bachelor	Music Education BME	1	1	.	.
			Total	1	1	.	.
Theatre	UGRD	Bachelor	Theatre BFA	.	.	1	1
			Theatre Studies BA	.	.	1	1
			Total	.	.	2	2
Visual Arts & Design, Schl of	UGRD	Bachelor	Art BA	2	2	.	.
			Art BFA	.	.	1	1
			Digital Media BA	1	1	1	1
			Film BA	1	1	2	2
			Total	4	4	4	4
	GRAD	Master's	Digital Media MA	.	.	1	1
			Total	.	.	1	1
Writing and Rhetoric	UGRD	Bachelor	Writing and Rhetoric BA	.	.	1	1
			Total	.	.	1	1
	GRAD	Master's	English MA - Rhet & Comp Trk	3	3	.	.
			Total	3	3	.	.
Total (ALL)				26	26	21	21

Note: Intent to graduate data is refreshed every morning at 8 A.M. Counts by Major. Students in multiple majors are counted multiple times.

IKM43964. Source: Degree Fact (Degrees) and PeopleSoft (Intents). Institutional Knowledge Management

Report Generated: 08/17/2018

Display 5. Degree-ITG from ITG-Degree Report

Degrees Granted and/or Intents to Graduate on File - College of Arts & Humanities

By Gender

					College of Arts & Humanities			
					Degree		Intent	
					2018-19 Summer 2018	Total	2018-19 Summer 2018	Total
Department	Career	Level						
Dean's Office CAH	GRAD	Doctoral	Texts and Technology PhD	Female	2	2	-	-
			Total		2	2	-	-
English	UGRD	Bachelor	English BA	Female	1	1	3	3
				Male	1	1	-	-
			Total		2	2	3	3
	GRAD	Master's	English MA	Female	3	3	-	-
				Male	1	1	1	1
			Total		4	4	1	1
History	UGRD	Bachelor	History BA	Female	2	2	3	3
				Male	1	1	4	4
			Total		3	3	7	7
	GRAD	Master's	History MA	Female	4	4	-	-
				Male	1	1	-	-
			Total		5	5	-	-
Latin American Studies	UGRD	Bachelor	Latin American Studies BA	Female	-	-	2	2
			Total		-	-	2	2
Modern Languages	GRAD	Master's	Teaching English(TESOL) MA	Female	1	1	-	-
				Male	1	1	-	-
			Total		2	2	-	-
Music	UGRD	Bachelor	Music Education BME	Male	1	1	-	-
			Total		1	1	-	-
Theatre	UGRD	Bachelor	Theatre BFA	Female	-	-	1	1
			Theatre Studies BA	Female	-	-	1	1
			Total		-	-	2	2
Visual Arts & Design, Schl of	UGRD	Bachelor	Art BA	Female	2	2	-	-
			Art BFA	Female	-	-	1	1
			Digital Media BA	Male	1	1	1	1
				Female	-	-	1	1
			Film BA	Male	1	1	1	1
			Total		4	4	4	4
	GRAD	Master's	Digital Media MA	Male	-	-	1	1
			Total		-	-	1	1
Writing and Rhetoric	UGRD	Bachelor	Writing and Rhetoric BA	Female	-	-	1	1
			Total		-	-	1	1
	GRAD	Master's	English MA - Rhet & Comp Trk	Female	3	3	-	-
Total (ALL)					26	26	21	21

Note: Intent to graduate data is refreshed every morning at 8 A.M. Counts by Major. Students in multiple majors are counted multiple times.

IKM43964. Source: Degree Fact (Degrees) and PeopleSoft (Intents). Institutional Knowledge Management

Report Generated: 08/17/2018

Display 6. Degree-ITG by Gender from ITG-Degree Report

MAINTENANCE

Current terms rolls over automatically and are being pulled from the term table in our transaction data store. By matching the current term with the expected graduation term, plus getting only those students flagged as ITG equal to 'Yes', we can identify those students filling an intent to graduate. In this sense, the project is maintenance free.

PERFORMANCE

These stored processes only take 5 seconds to run and generate the results in an excel output with multiple tabs.

FUTURE DEVELOPMENT

Basic tables are what users need to answer their questions. A variety of display outputs could be implemented to improve these reports in the future. Adding maps for the County counts could be an example of improving one of these reports.

REFERENCES

Cody, Ron. 2007. Learning SAS® By Example: A Programmer's Guide. 626 pages. Cary, NC: SAS Institute Inc.

<http://support.sas.com/>

CONTACT INFORMATION

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