Class Project Collaboration

The following is a general proposal for a collaboration between the Applied Research Laboratories (ARL) MISS office and a UT software development class for a class project. The class is led by Phillip E. Cannata, PHD, Adjunct Professor with the Department of Computer Science in the College of Natural Sciences at the University of Texas at Austin. The proposed project would be for a CS 347 Data Management class Dr. Cannata teaches on campus.

In general, this collaboration would mean that the ARL MISS office will provide Dr. Cannata with the outline and business rules of one or more data entry projects. If an MISS project is chosen by the class, the student developers will spend part of the semester creating a data entry system using an Oracle database for data storage and the Oracle Application Express (APEX) tool for developing the data entry screens. All primary interaction will be coordinated through Dr. Cannata at UT and MISS manager Carrie Woodworth at ARL. Specific dates and requirements for individual projects will be included with a copy of this document for each proposed project.

1) Visits to ARL
   Onsite ARL visits are not a requirement of this collaboration. However, should it be beneficial to the project and to the students involved, arrangements can be made to allow site visits to ARL. Such visits would be held in a front ARL conference room without full building access. Conversely, should it be beneficial to the project and to the students involved, appropriate members of the MISS development team will make themselves available for visits to campus to meet with the student developers. Should an onsite visit inside of the lab be desired, the request will be sent through the appropriate ARL authorities for approval and specific arrangements.

2) Access to ARL systems
   No project will require students to have access to any internal ARL systems. Proposed project descriptions provided by MISS to the class will not include any actual table names or data currently in production use at ARL.

3) MISS Deliverables
   MISS agrees to provide written project specifications for each proposed project. The specifications will be in any combination of Microsoft Word, Microsoft Excel, and/or Adobe PDF as appropriate to convey the information. The specifications will include a general outline of the project, a starting point for any data definitions, explanations of desired functionality, and any business rules that should be applied. In addition to providing descriptions of potential data entry projects, MISS agrees to make one or more staff developer available to answer questions or provide guidance as needed throughout the semester. MISS agrees to acknowledge and respond to all project-related questions and requests within 48 hours of receiving them during normal business hours.

4) Benchmarks and Progress Reports
   Specific dates will be included with specific proposed projects. In general, student developers will provide email updates on the project on a weekly basis, with a more detailed updated at the midpoint between accepting the project and the end of the semester.

5) Class Deliverables
   At the conclusion of a project, Dr. Cannata and the student developers will provide a presentation of what they have completed. They will also provide an electronic version of all associated source code. All provided code must be open and available to MISS to review in detail. No pre-compiled or hidden encapsulated code will be accepted. All code provided must be able to run on a local installation of an Oracle Application Express server

and Oracle database that MISS will provide and maintain internally. The final product must not have any dependencies on or references to any external systems, servers, or websites unless explicitly stated in the requirements provided by MISS.

6) Cost to ARL and to UT
   The only cost to ARL for this collaboration will be in MISS staff time. The APEX software license and the hardware to run it are already available to ARL under current licensing and usage. There are no additional monetary charges to be incurred by Dr. Cannata or his students for these projects. Projects will be developed using tools Dr. Cannata already provides, leveraging the Oracle APEX online development sites.

7) Current Contact Information
   Phillip E. Cannata, PHD
   Adjunct Professor
   Department of Computer Science
   College of Natural Sciences
   The University of Texas at Austin
   2317 Speedway, Stop D9500
   Austin, TX 78712
   Office: TAY 2.124
   512-263-3451
   phil.cannata@oracle.com

   Carrie A. Woodworth
   Manager
   Management Information Systems Services
   Applied Research Laboratories
   The University of Texas at Austin
   10000 Burnet Road
   Austin, TX 78758
   512-835-3973
   carrie.woodworth@arlut.utexas.edu

Requests for Exceptions
Proposed APEX Project

Project Title:		Request for Exceptions
Proposed Start Date:		Sep-2015
Proposed Mid-point Review:		04-Nov-2015
Proposed Completion Date:		Dec-2015

Toolset

The class will be using either apexea.oracle.com or a custom server provided by Dr. Cannata to build a prototype using version 5 of Oracle Application Express. The final version of the product given to MISS should also be compatible with the Oracle 11gr2 database or higher and should be able to run on current versions of the Internet Explorer, Firefox, Chrome, and Safari browsers.

Class Deliverables

The completed project should include all source code to generate, deploy, and run a data entry system that meets the Request for Exceptions Project requirements. This should include all necessary source code as well as any SQL or PL/SQL scripts to generate tables, functions, procedures, and/or packages required for the project.

Project Details

Requests for exceptions are part of an overall risk management plan and must be submitted and routed through the appropriate approvals before they can be implemented. All existing RFEs must be monitored and periodically reviewed as determined by the Executive Director's Office. The Request for Exceptions (RFE) system proposed in this document will provide users with an online method to apply for and route RFEs specific to their lab or research project needs.

For the RFE System, the general flow is as follows:
- A Requestor will initiate an RFE, filling out all required fields. The Requestor may then submit the completed RFE for lab system administrator approval.
- Upon lab System Administrator approval, the RFE is routed to the lab's Director for approval.
- Upon Lab Director approval, the RFE is routed for Security Panel Chairperson approval.
- Upon Chairperson approval, the RFE is routed for final approval by the Executive Director's Office.

At any point prior to final approval an RFE may be returned for further clarification, may be rejected for implementation by an approver, or may be recalled by the Requestor.

Data Entry Sections

For all data entry, note the following requirements:
- All dates should include timestamps
- Once an RFE reaches the status of 'Final Approved' or 'Rejected', no data for that RFE can change other than addition of comments to the RFE_Tracking_Comments table.
- All database fields identified as NOT NULL are considered required fields and must have data before the record can be saved.
- All contacts, regardless of type, that are added to an RFE must be active employees at the time of data entry. A user should not be able to select an inactive employee.

- The Requestor may add as many FYI reviewers as they wish. All other contacts should be generated automatically as follows and cannot be changed:
    - The user who creates a new RFE is the Requestor.
    - The System Administrator Approver and Lab Director Approver should be pulled based on the Requestor's lab.
    - The Security Panel Chairperson Approver and the Executive Director's Office Approver roles should be assigned automatically.

Functionality and Business Rules

Upon login, the application should determine which level of access the user has and expand or limit options accordingly. All users should be able to view any RFE where they are listed as a contact. Whether or not they can modify the RFE will depend on what role the user has and the status of the RFE.

Requestor:

A requestor should have access to any RFE they created. The following actions apply only to the subset of RFEs that they have access to:

- Create a new RFE
    - The RFE Status should be 'Entered' with an effective date of the current system date.
    - For Contacts, the logged in user should be set as the Requestor; the System Administrator and Lab Director roles should be filled in based on the Requestor's lab. The Chairperson and Executive Director roles should be filled automatically as well.
- Duplicate an existing RFE (regardless of status) in order to generate a new RFE.
    - The basic information from the selected RFE should be copied into a new RFE with a new tracking number. The status should be 'Entered' and the effective date should be the current system date.
    - The duplicated RFE should then follow the same rules and workflow as when Create a new RFE is chosen.
- Modify an existing RFE that is in 'Entered' or 'Recalled' status.
- Recall any RFE that has not yet reached final approval
    - The RFE should be changed to 'Recalled' status with an effective date of the current system date.
    - Auto-Comment – add an automatic comment to the comments section noting that the RFE was Recalled, by whom, and what date/time.
    - Auto-Email – notify any approver that has already seen or approved the RFE at their level that the Requestor has recalled it.
- Submit an RFE for approval
    - A Requestor can only submit RFEs that are in 'Entered', 'Recalled', or 'Returned' status.
    - The RFE status should be updated to 'Submitted' with an effective date of the current system date.
    - Auto-Email - The lab System Administrator should get an email notifying them that the RFE has been routed to them for approval.
- View but not modify any RFE that has reached final approval or has been rejected. View but not modify any RFE where they are listed as a contact but they are not the Requestor.

Requests for Exceptions
Proposed APEX Project

System Administrator Approver:

A System Administrator Approver should have all the privileges of a Requestor for any RFEs associated with their lab. In addition a System Administrator Approver should have the following abilities:

- Submit an RFE for Lab Director Approval
    - The RFE Status should be changed to 'SA Approved' with an effective date of the current system date.
    - Auto-Email - An email should go to the lab director and the Requestor
- Return to Requestor
    - On Return, the RFE status is changed to 'Returned' status with an effective date of the current system date.
    - Auto-Email - An email notice should go to the Requestor.
    - Auto-Comment - add an automatic comment to the comments section noting that the RFE was Returned, by whom, and what date/time.
- Reject an RFE
    - On Reject, the RFE status is changed to 'Rejected' status with an effective date of the current system date. A Rejected RFE cannot be resubmitted. A new RFE would need to be created instead.
    - Auto-Email - An email notice should go to the Requestor.
    - Auto-Comment - add an automatic comment to the comments section noting that the RFE was Rejected, by whom, and what date/time.

Lab Director Approver:

A Lab Director Approver should have all the privileges of a Requestor for any RFEs associated with their lab. In addition a Lab Director Approver should have the following abilities:

- Submit an RFE for Chairperson Approval
    - The RFE Status should be changed to 'LD Approved' with an effective date of the current system date.
    - Auto-Email - An email should go to the Chairperson and the Requestor
- Return to Requestor
    - On Return, the RFE status is changed to 'Returned' status with an effective date of the current system date.
    - Auto-Email - An email notice should go to the Requestor.
    - Auto-Comment - add an automatic comment to the comments section noting that the RFE was Returned, by whom, and what date/time.
- Reject an RFE
    - On Reject, the RFE status is changed to 'Rejected' status with an effective date of the current system date. A Rejected RFE cannot be resubmitted. A new RFE would need to be created instead.
    - Auto-Email - notify all associated contacts that the RFE will not be implemented.
    - Auto-Comment - add an automatic comment to the comments section noting that the RFE was Rejected, by whom, and what date/time.

Chairperson Approver:

A Chairperson Approver should have all the privileges of a Requestor as well as the following abilities:

- Submit for Executive Director Approval
    - The RFE Status should be changed to 'CH Approved' with an effective date of the current system date.
    - Auto-Email - An email should go to the Executive Director and the Requestor
- Return to Requestor

- o On Return, the RFE status is changed to 'Returned' status with an effective date of the current system date.
  - o Auto-Email - an email notice should go to the Requestor.
  - o Auto-Comment - add an automatic comment to the comments section noting that the RFE was Returned, by whom, and what date/time.
- Reject an RFE
  - o On Reject, the RFE status is changed to 'Rejected' status with an effective date of the current system date. A Rejected RFE cannot be resubmitted. A new RFE would need to be created instead.
  - o Auto-Email - notify all associated contacts that the RFE will not be implemented.
  - o Auto-Comment - add an automatic comment to the comments section noting that the RFE was Rejected, by whom, and what date/time.

Executive Director Approver:

An Executive Director Approver should have all of the privileges of a Requestor (except across all labs) as well as the following abilities:

- Final Approve
  - o The RFE status should be changed to 'Final Approved' with an effective date of the current system date.
  - o Final Approval must include a review date of 1,2,3,4, or 5 years, or a specific date they enter.
  - o Once an RFE reaches final approval, the record should be locked. The only changes allowed after final approval would be to allow adding comments to the RFE_Tracking_Comments table where ongoing status or review notes can be added.
  - o Auto-Email - Upon Final Approval, all associated contacts should be notified via email.
- Return to Requestor
  - o On Return, the RFE status is changed to 'Returned' status with an effective date of the current system date.
  - o Auto-Email - an email notice should go to the Requestor.
  - o Auto-Comment - add an automatic comment to the comments section noting that the RFE was Returned, by whom, and what date/time.
- Reject an RFE
  - o On Reject, the RFE status is changed 'Rejected' status with an effective date of the current system date. A Rejected RFE cannot be updated or resubmitted.
  - o Auto-Email – notify all associated contacts that the RFE will not be implemented.
  - o Auto-Comment - add an automatic comment to the comments section noting that the RFE was Rejected, by whom, and what date/time.

Reports

- Listing of any RFE whose approval is due to expire within 35 days.
- Listing of any RFE whose approval has expired within the last 35 days.
- Summary report of all RFE's, their current statuses, and their approval expiration dates.

Sample Tables and Data:

Requests for Exception					
Reference Tables					
ARL_Employees:					
Table to track employee names and statuses. Note that only one SYSTEM_ADMIN, LAB_DIRECTOR, EXEC_DIRECTOR, and CHAIRPERSON flag in a record can be set to 'Y' (or all can be 'N'). Across all records, there should be only one CHAIRPERSON and one EXEC_DIRECTOR.					
Name	Null	Type			Sample Data
EMPLOYEE_ID	NOT NULL	NUMBER	Unique identifier for an employee generated from a sequence.		4545
EMPLOYEE_NAME	NOT NULL	VARCHAR2(30)	Employee name in the format "LastName, FirstName MI."		Doe, John Q.
EMPLOYEE_LAB	NOT NULL	VARCHAR2(4)	4-character lab code identifying which lab the employee is appointed to.		ITSS;
EMPLOYEE_EMAIL	NOT NULL	DATE	Employee preferred email address		joe@mail.com
EMPLOYEE_OFFICE	NOT NULL	DATE	Employee Office Number		A200
EMPLOYEE_PHONE	NOT NULL	DATE	Employee Office Phone		512-555-1234
EMPLOYEE_STATUS	NOT NULL	VARCHAR2(1)	A for active or I for inactive		A
STATUS_EFF_DATE	NOT NULL	DATE	Date the employee_status became effective		25-AUG-2015 08:00am
SYSTEM_ADMIN_FLAG	NOT NULL	VARCHAR2(1)	Y/N flag to indicate the employee is a system administrator for their lab		Y
LAB_DIRECTOR_FLAG	NOT NULL	VARCHAR2(1)	Y/N flag to indicate the employee is a lab director		Y
EXEC_DIRECTOR_FLAG	NOT NULL	VARCHAR2(1)	Y/N flag to indicate the employee is an executive directory		Y
CHAIRPERSON_FLAG	NOT NULL	VARCHAR2(1)	Y/N flag to indicate the employee is a network security panel chairperson		Y

RFE_Role_Type_Codes					
Reference to track valid role types					
Name	Null	Type			Sample Data
ROLE_CODE	NOT NULL	NUMBER	Unique identifier		5
ROLE_TYPE	NOT NULL	VARCHAR2(30)	Identifier to describe the purpose a reviewer has been associated with the RFE		Requestor
DESCRIPTION	NOT NULL	VARCHAR2(500)	Full description of what the role represents		An approver assigned to an RFE must review the RFE and either approve or provide feedback.
RFE_Status_Codes:					
Reference table of valid RFE Status Codes					
Name	Null	Type			Sample Data
STATUS_CODE	NOT NULL	Number	Unique identifier		1
RFE_STATUS	NOT NULL	VARCHAR2(30)	Full text of status code		Entered
DESCRIPTION	NOT NULL	VARCHAR2(500)	Full description of what the status represents		The RFE has been created but has not yet been submitted for approval.
Data Entry Tables					
RFE_Exception_Requests:					

Requests for Exceptions
Proposed APEX Project

Table to track basic request information					
Name	Null	Type			Sample Data
RFE_ID	NOT NULL	NUMBER	Unique identifier generated from a sequence		55
EXPLANATION	NOT NULL	VARCHAR2(4000)	Description of the exception that is needed and why the project reasonably cannot work within the policies and standards.		Firewall exception needed to access site.
ALT_PROTECTIONS	NOT NULL	VARCHAR2(4000)	An explanation of actions taken by the project to minimize the risks to ARL:UT data security.		
APPROVAL_REVIEW_DATE		DATE	The date that Final Approval expires.		25-AUG-2016 08:00am
RFE_Tasks:					
Table to track which projects are tied to a specific RFE					
Name	Null	Type			Sample Data
RFE_ID	NOT NULL	NUMBER	Unique identifier tied to RFE_Exception_Requests.rfe_id		55
EFFECTIVE_DATE	NOT NULL	DATE	Date this task was assigned to the RFE.		25-AUG-2015 08:00am
TASK_ABBREVIATION	NOT NULL	VARCHAR2(15)	15-character task identifier		9595-2-1-1, Flight Test,
TASK_DESCRIPTION	NOT NULL	VARCHAR2(4000)	A general description of the task being worked on and specifics on the part of the task requiring exceptions.		
RFE_Statuses:					
Table to track current status and status history for a specific RFE					
Name	Null	Type			Sample Data
RFE_ID	NOT NULL	NUMBER	Unique identifier tied to RFE_Exception_Requests.rfe_id		55

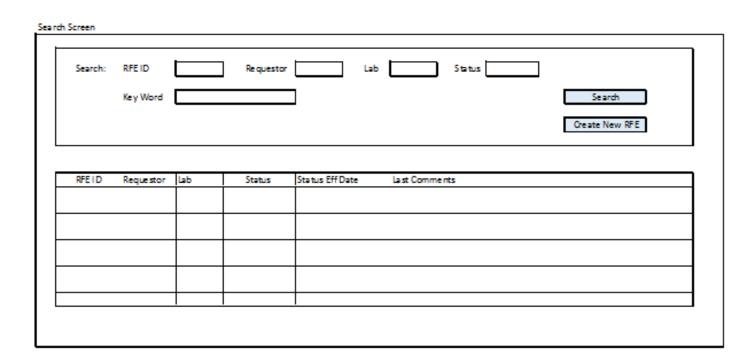| STATUS_CODE	NOT NULL	VARCHAR2(1)	Tied to rfe_status_codes.status_code		E
EFFECTIVE_DATE	NOT NULL	DATE	Date the status_code became effective for this RFE.		25-AUG-2015 08:00am
ENTERED_BY_EMP_ID	NOT NULL	NUMBER	Unique employee id tied to active_employees.employee_id to log which employee made status changes.		4545
RFE_Contacts					
Table to identify which employees should be associated with an RFE and which role they have					
Name	Null	Type			Sample Data
RFE_ID	NOT NULL	NUMBER	Unique identifier tied to RFE_Exception_Requests.rfe_id		55
CONTACT_ROLE_CODE	NOT NULL	NUMBER	Tied to rfe_role_type_codes.role_code		A
CONTACT_EMP_ID	NOT NULL	NUMBER	Unique employee id tied to active_employees.employee_id.		4545
EFFECTIVE_DATE	NOT NULL	DATE	Date this contact was added to the RFE		25-AUG-2015 08:00am
COMMENTS		VARCHAR2(4000)	Text comments		
RFE_Tracking_Comments:					
Table to track ongoing automatic and user comments for a specific RFE					
Name	Null	Type			Sample Data
RFE_ID	NOT NULL	NUMBER	Unique identifier tied to RFE_Exception_Requests.rfe_id		55
ENTERED_BY_EMP_ID	NOT NULL	NUMBER	Unique employee id tied to active_employees.employee_id.		4545
COMMENT_ENTRY_DATE	NOT NULL	DATE	Date the comment was entered		25-AUG-2015 08:00am

Requests for Exceptions
Proposed APEX Project

COMMENTS	NOT NULL	VARCHAR2(4000)	Text comments		

RFE_Status_Codes		
1	Entered	The RFE has been created but has not yet been submitted for approval.
2	Submitted	The RFE has been submitted to the Lab System Administrator for approval.
3	Returned	The RFE has been returned for further information or clarification. Once Submitted again, it will follow the same routing as an Entered RFE.
4	Recalled	The requestor has recalled an RFE that has not yet reached final approval. Once Submitted again, it will follow the same routing as an Entered RFE.
5	Rejected	The RFE has been rejected and cannot be implemented.
6	SA Approved	The Lab System Administrator has approved the RFE; it has been submitted for Lab Director approval.
7	LD Approval	The Lab Director has approved the RFE; it has been submitted for Network Security Panel approval.
8	CH Approval	The Lab Director has approved the RFE; it has been submitted to the Chairperson of Security Panel approval.
9	Final Approved	The Executive Director's Office has given final approval for the RFE and it may be implemented.
RFE_Role_Type_Codes		
1	Requestor	The employee who create the RFE
2	FYI Reviewer	An employee with peripheral interests; will get automatically notified at certain stages
3	Sys Admin Approver	First round approver for new RFE's in their lab
4	Lab Director Approver	Second round approver for new RFE's in their lab
5	Chairperson Approver	Network Security Panel approver
6	Exec Dir Approver	Final round approver for all RFE's

Requests for Exceptions
Proposed APEX Project

Sample Screens:

The following are a set of sample layouts. The layouts themselves do not need to be duplicated, but the functionality they represent should be available in the final product.

Search Screen

Search:	RFE ID		Requestor		Lab		Status	

Key Word

Search

Create New RFE

RFE ID	Requestor	Lab	Status	Status Eff Date	Last Comments

Requests for Exceptions
Proposed APEX Project

RFE Details Screen

RFE:				Status History:		
Status:						
Status Eff Date:						

Contacts

Role	Employee	Lab	Email	Office	Phone	Comments

Duplicate

Save

Submit

Recall

Project

Task Abbr:	Lab:	Project Name:

Project Description:

Explanation of Need for Exception

Approve

Reject

Explanation of Alternate Protection Being Provided

Additional Comments:

Requests for Exceptions
Proposed APEX Project

RFE Approvals   by Excutive Director's Office

RFE:

Approved for: ☐ 1 year   ☐ 2 years   ☐ 3 years   ☐ 4 years   ☐ 5 years   Until: _____

Comments:
Entered by: On:

RFE Tracking Comments

RFE:

Comments:
Entered by: On:

Entered by: On:

Entered by: On: