**Project Title: Employee Tracker**

**Project Team Name: DataTrackers**

**Group 6**

Team members:

Jaehan Jeong  
Jaehan.Jeong24@gmail.com

Ives Wu  
Ives.Wu@baruchmail.cuny.edu

Angelyn Arthur  
Angelyn.Arthur@baruchmail.cuny.edu

CIS 5800 - EMWA

Professor Rudolph Brown

***Human Resources (HR) System - Employee Tracker***

**Table of Contents:**

**Final Project Proposal Report………………………………………………………………1-12**

**1. Summary…………………………………………………………………………………..…. 1**

**2. Reason for Project………………………………………………………………………………….………. 2**

**3. Organization………………………………………………………………………………..... 3**

**4. Stakeholders……………………………………………………………………………..........4**

**5. Business Case…………………………………………………………………..……….......... 5**

**6. Criteria for Project Success………………………………………………...….….………... 6**

**7. Roles and Responsibilities………………………………………………………...……….... 7**

**8. Team Contract…………………………………………………………………………….. 8-9**

**9. Team Meeting Log …………………………………………………….………..……….10-12**

**Phase I…………………………………………………………………...………..……..…...…..…13-32**

**1. Summary…………………………………………………………………...………..………. 13**

**Requirements and Systems Analysis**

**2. Project Requirements………………………………………………………………..……… 14**

**3. Use Case Model….…………………………………………………………………...……… 15**

**4. Use Case Description…………………………………………………….…………..........16-23**

**5. Class Diagram...………………………………………………………….…………….......... 24**

**6. Activity Diagram……………………...……………………………………………….......25-26**

**7. UI Mockups …….…..……...…………………………………………………………......... 27**

**8. Sequence Diagram………...……………..……………………………………………......28-29**

**9. Data Dictionary…..…...……………………………………………………………….......... 30**

**Requirements Traceability Matrix**

**10. Table Map…….…..……...……………………………………………………………......... 31**

**Project Plan**

**11. Project Template..…………………………...……………….……………………….......... 32**

**Phase II ………………………………………………………………...………..……….....…...…33-40**

**1. Summary…………………………………………………………………...………..………. 33**

**System Design**

**2. Menu Hierarchies (or Site Map).....……………………………………………..…..……… 34**

**3. User Interface (UI) and/or Form Design…………………………………...…………….... 35**

**4. Query Design....………………………………………………………….…………….......36-37**

**5. Report Design………………….……...…………………………………………….…......... 38**

**Meeting Logs**

**6. Team Meeting Minutes..……………………………………………………………........ 39-40**

**Phase III ………………………………………………………………...………..………...…..…41-51**

**1. Summary…………………………………………………………………...………..………. 41**

**Implementation**

**2. Hardware / Software / Interface ………………………………………………….……….. 42**

**3. Test Plan....………………………………………………………….………………..........43-45**

**4. Training Plan………………….……...……………………………………………….......46-47**

**5. Implementation Plan………………………………………………………….......................48**

**6. Support Plan………………………………………………….……………….......................49**

**Meeting Logs**

**7. Team Meeting Minutes..…………………………………………………………….........50-51**

**Phase IV …………………………………………………………………...……………………….52-60**

**1. Executive Summary………………………………………….……………………...…….52-53**

**Close-Out**

**2. Revision History ………….....………………..…….……………………………..…..…….. 54**

**3. Used Code....…………………………………..…………………….………………...............55**

**4. Variance from Original Specifications………………….…....………..……………………56**

**5. Proposed Modifications…………………....…………………………...…….........................57**

**6. Lessons Learned…………………………………...……….……..………….........................58**

**Meeting Logs**

**7. Team Meeting Minutes…..………………………………………………………….........59-60**

**Summary Final Project Proposal:**

The HR department of a small manufacturing firm is in need of an application to manage records for their 30-member staff. The department is currently keeping all their documents in filing cabinets that take up almost half of their office space. They allocate much of their time searching through countless stacks of unorganized portfolios.

Our team will be responsible for helping the HR department by creating a database to help organize employee data, allow Human Resources personnel to manage the level of accessibility for the database, and generate reports for upper level management. The database will offer a variety of benefits for the department as it will provide an easy, effective, and efficient method to manage records for the current amount of staff (and more if the company decides to expand).

We are expecting this project to be completed within a span of twelve weeks. Within the project time frame, we will dedicate a week to researching and deciding on the necessary software required to create a working database, a week to create UML diagrams to address the requirements of the system, and a few weeks to create a database, input records, and run tests to ensure it is fully functioning. We strive to make everything - even the smallest detail, perfect.

**Reason for Choosing Project:**

The reason behind choosing to create a database for the Human Resources department of this small manufacturing firm is to help the department organize their employee records. At DataTrackers, we understand the importance of maintaining employee information. With the creation of our application, the information will be readily available at all times. Updating and viewing records such as employee contact, salary, or personal information can be done instantaneously. This also makes the system extremely efficient and accurate because of the ease of accessibility by the appropriate personnel. We can ensure that the data records will remain confidential due to a tracking process placed in the system.

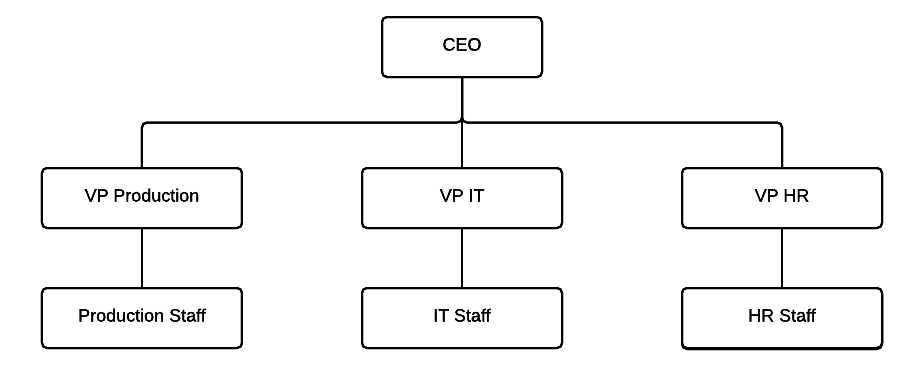
At DataTrackers, we consider ourselves experts within the field and guarantee that we can customize the application to the liking of each firm. With the increasing amount of companies that are trying to go paperless over the past decade, we see this as an opportunity to help the environment as well. DataTrackers take pride in making the lives of others easier and view this as a challenge that we are willing to take on and deliver.

**Organization:**

* The department we will developing this project for is the Human Resources department in the Manufacturing industry. The company we will be implementing a new system for is a manufacturing firm.

* The organization’s structure involve the Human Resource department falling under the CEO and being responsible for handling the records of the manufacturing firm’s employees.

Organizational chart for manufacuring firm:



* The main business of the company is manufacturing products.

* The project will help the organization by ensuring that the HR department will have a sufficient system where they will be able to organize and track the manufacturing firm’s employee records.

**Project Stakeholders:**

Employee Tracker has several stakeholders. Internal stakeholders include (but not limited to): the employees working for the company requesting the service, human resource managers, and the head(s) of the company. External stakeholders includes customers using the company or shareholders of the company using this software.

**Business Case:**

* The problem regarding the organization involves a manufacturing firm and the needs for the firm’s HR department to track employee data. It is imperative for the organization to be able to track employee data of their 30 member staff.
* There isn’t a pre-existing system pertaining to managing the 30 member staffs’ records.
* Our solution is to provide an efficient and viable customer application to solve and meet the organization’s needs in tracking and handling employee data.
* The goals of the new system include the creation of a user interface as well as creating a successful database where the HR manager and staff will be able to add, delete, modify, search, and view employee records. The system will also allow for reports to be generated for executives and for the HR manager and staff.
* The technology that will be used for the project is Microsoft Access.
* The scope of work for this project involves three major areas, they include: a successful creation of a database using Microsoft Access to input employee data, UML diagrams to represent the requirements and needs of the system, and the design of a user interface which would allow a user to view employee information obtained from the database.
* The requirements of the new system include the HR manager and staff being able to add, delete, modify, search, and view employee records, in addition to generating reports. Executives will also be able to generate and print reports of employees.
* Five potential risks, critical assumptions, or constraints that might impact any area of the project:

1. The technology used for the database might not meet the needs of the organization as well as another DBMS.
2. Overall time constraints.
3. Some areas (ex: SQL Queries) of the scope of work might cause some difficulty.
4. Lack of communication with prospective users.
5. Critical changes in the middle of the project.

**Measurements of Success:**

Our project success will be determined using the following three criteria:

1. Pride and confidence in our final product
   * Our utmost priority is to foster pride in our product. To sell our product, we must have confidence and pride in our product, thus ensuring the highest quality possible.
2. Stakeholder (customer) satisfaction
   * Moreover, we’re always ready for customer feedback to improve and cater to customers’ preferences. Customer satisfaction will directly translate to our future reputation and opportunity, so we have every incentive to not only satisfy, but also exceed our customer expectations.
3. Timely delivery of a high-quality final product that meets or exceeds the pre-set requirements.
   * On our path to being a great company, we will focus on basics as well. Under no circumstances should we miss the deadline for the delivery of our final product nor should we deliver a mediocre product full of bugs. Perfecting the small things, that is our motto.

**Roles and Responsibilities:**

|  |  |  |
| --- | --- | --- |
| **Role** | **Person** | **Responsibility** |
| Systems Analyst | Angelyn Arthur | * Identify opportunities that can improve efficiency of the project * Assist in troubleshooting of the software application * Verifying database and data integrity * Assist in the creation of the system design and functional specifications for the project * Write technical procedures and documentation for the project |
| UI Designer | Ives Wu | * Design wireframes and mockups * Develop design concepts * Translate user requirements into actual interface |
| Programmer | Kevin Merslich | * Write, update, and maintain program in computer language (SQL) * Debug program by testing and fixing errors * Consult with team members to clarify program intent |
| Database Administrator | Jaehan Jeong | * Evaluate SQL features * Establish and maintain backup and recovery policy and procedures * Complete database design and implementation * Maintain database security * Work collaboratively specifically with programmer to clarify program intent |

**Team Contract:**

**Code of Conduct:** As a project team, we will:

* Work together, prevent any problems, and constructively and respectfully resolve any differences.
* Keep all team members fully informed of any project related information.
* Always consider what is within the best interest of the entire project team.
* Prepare and submit all work in a neat, organized and professional manner, and will represent work performed by the team, and not copied or done by other people.
* Conduct all project work in an ethical and honest manner, and not place the project and team members at risk with any preach in policies on academic dishonesty.

**Participation:** We will:

* Participate equally and honestly in all project activities and duties.
* Always work together to provide the highest quality deliverables, with each member fulfilling their responsibilities and providing the highest quality work.
* Encourage diversity in our work, and be open to new ideas and ways of doing things.
* Inform the team in advance when individual members are unable to make a meeting or may have an issue completing a given task on time.

**Communication:** We will:

* Determine as a team, the best ways and times to communicate, using the most appropriate effective communication method and meeting options available to all team members.
* Keep all discussions focused on the project, and present all ideas and thoughts in a manner that will benefit the entire team.
* Work together to meet our project schedule and deliver all work on time.

**Problem Solving:** We will:

* Give everyone the opportunity to participate in solving problems.
* Provide constructive feedback, and focus on resolving any issues, and not blame or criticize anyone.
* Aim to build on each other’s ideas and suggestions.

**Meeting Guidelines:** We will:

* Plan to meet as needed, face-to-face or virtual, at a time convenient to each member
* Include all team members in all meetings, and equally and willingly share information and duties during each meeting.
* Record our meeting minutes in a Team Meeting Log, and distributing them to the team in a timely manner, clearly identifying the decisions made and action items.

|  |  |  |
| --- | --- | --- |
| **Name (print)** | **Sign-off on Team Contract** | **Date** |
| Jaehan Jeong | *Jaehan Jeong* | 9/25/15 |
| Kevin Merslich | *Kevin Merslich* | 9/25/15 |
| Ives Wu | *Ives Wu* | 9/25/15 |
| Angelyn Arthur | *Angelyn Arthur* | 9/25/15 |
|  |  |  |
|  |  |  |

**Team Meeting Logs:**

|  |  |  |
| --- | --- | --- |
| **Meeting Date:**  9/17/15 | **Meeting Time:**  9:00PM | **Meeting Type:**  Virtual |

|  |  |
| --- | --- |
| **Project Name:** Employee Tracker | **Group #/Team Name:** DataTrackers |

|  |  |
| --- | --- |
| **Meeting Facilitator:** Jaehan | **Meeting Minutes Recorder:** Jaehan |

|  |
| --- |
| **Meeting Objective:** Our objective during this meeting was to collaboratively finish our project proposal, discuss the tasks we accomplished, and prepare for Phase 2. |

|  |  |  |
| --- | --- | --- |
| **Attendees** | **Absentee** | **Excused Absence (Y/N)** |
| Jaehan Jeong |  |  |
| Kevin Merslich |  |  |
| Ives Wu |  |  |
| Angelyn Arthur |  |  |
|  |  |  |

|  |  |
| --- | --- |
| **Topics Discussed/Tasks Accomplished** | **Responsibly Team Member(s)** |
| Final Project Proposal | Jaehan, Kevin, Ives, Angelyn |
| Review UML | Jaehan |
| Review MS Access | Ives |
| Review SQL | Kevin |
| Review Database Implementation | Angelyn |

|  |  |
| --- | --- |
| **Decisions Made** | **Responsibly Team Member(s)** |
| Software selection - MS Access | Angelyn |
| Programming language - SQL | Kevin |
| UI Layout mock-up | Ives |
| UML selection - Type of UML’s to use | Jaehan |
|  |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| **Action Item/Tasks Assigned** | **Assigned To** | **Due Date** |
| Brainstorm for Phase 2 | Jaehan, Kevin, Ives, Angelyn | 9/29/15 |
| Bring rough drafts of all UML’s | Jaehan | 9/29/15 |
| Start researching SQL statements | Kevin | 9/29/15 |
| Bring a rough draft of example UI | Ives | 9/29/15 |
| Research recurring problems in this type of applications. | Angelyn | 9/29/15 |
|  |  |  |

|  |
| --- |
| **Meeting End Time:** 9/17/15 11:00 PM |

|  |
| --- |
| **Next Meeting Date and Time:** 9/28/15 |

**Project Team Members Names and Signature:**

|  |  |  |
| --- | --- | --- |
| **Name (print)** | **Signature** | **Date** |
| Jaehan Jeong | *Jaehan Jeong* | 9/25/15 |
| Kevin Merslich | *Kevin Merslich* | 9/25/15 |
| Ives Wu | *Ives Wu* | 9/25/15 |
| Angelyn Arthur | *Angelyn Arthur* | 9/25/15 |

**Summary Phase I:**

This report will examine the requirements and analysis of ‘Employee Tracker.’ The main target of this project is digitizing the employee information for Carnegie’s Steel Inc. to reallocate corporate resources more optimally. In this analysis phase, the procedures and scope of the project will be clarified using unified modeling language (UML) that visualizes the goals, methods, data structures, requirements and more.

Use case model on page 15 shows the actors and the use cases (goals) of this system. In other words, it shows who is doing what. In this use case model, the main actors are the HR (Human resources) manager and the HR staff, and their job is to manage the employee records.

Following the use case model, there are use case descriptions (pages 16-23). These are used to summarize the main use cases presented in the use case model. In addition to preconditions and post conditions that determine the required conditions to activate the use cases, main flows are shown to delineate the sequential actor-goal interactions.

Domain class diagram on page 24 traces the main entities of this system, namely the actors and objects, at a deeper level. This diagram details the attributes, operations of each class (entity) as well as the multiplicities involved in between those classes. As shown in page four, ‘User’ is the main actor that controls the information to meet his / her needs.

Then there are the activity diagrams on page 25 and 26. Its job is to communicate the workflow of an activity, for example, searching employee records. Swimlanes are used to distinguish the boundaries of each actor (objects) participating in the activity, and procedurally, actors go through required steps and decisions to achieve their goal.

On pages 28 and 29, there are sequence diagrams. They’re similar to activity diagrams, but the communication between objects is refined using message lines that have method names attached. Moreover, each object gets a lifeline that shows the activation and deactivation timing. These specifics help programmers to conceptualize time frames associated for various classes.

Concluding the requirements and analysis section is the data dictionary on page 30. This section will list all types of data and their details including data types, names, descriptions, as well as distinctions between primary and foreign keys. In short, data dictionary will encapsulate specifics of all attributes involved in this project.

To easily trace the project requirements listed, requirements traceability matrix will be used (page 31). This table will show the requirement numbers, requirement, and their associations with use cases and use case numbers. This will ensure all requirements be met concisely.

Finally, on page 32, project plan will be summarized using project template. Microsoft Project is used to create the template, and this template shows the project phase, task names and time frames of each and every activity planned for Employee Tracker.

**Project Requirements**

1. **Functionality (Use cases)**
   1. User can access system (R1).
   2. User can add employee records (R2).
   3. User can delete employee records (R3).
   4. User can modify employee records (R4).
   5. User can view employee records (R5).
   6. User can search employee records (R6).
   7. User can view reporting module (R7).
   8. User can print reporting module (R8).
2. **Time Frame**
   1. Follow the deadlines provided in the syllabus with the final deadline of December 14th.
3. **General**
   1. Create a simple and intuitive user interfaces that allow users to use this program without any instructional supports.

**Use Case Model**



**Use Case Description**

**Use Case Name**: Login

**ID**: 1

**Brief Description**: This use case allows the actor to log on to the system.

**Primary Actors**: HR Staff, HR Manager, and an Executive

**Secondary Actors**: None

**Pre-conditions**: The HR Staff, HR Manager, and or Executive must have a username and password.

**Main Flow**:

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
|  | 1. System displays login screen |
| 2. The HR Staff, HR Manager, or an Executive enters their username and password | 3. The system verifies the username and password and determines the user’s privileges |
|  | 4. System loads main menu screen |
|  |  |

**Post-conditions**: If login was successful, the actor will be logged into the system.

**Alternate flows**:

* 3a. If the system does not recognize the username and password, an error message will be displayed.

**Use Case Name**: Add Employee Record

**ID**: 2

**Brief Description**: This use case allows the HR Staff and Manager to add an employee record in the system.

**Primary Actors**: HR Staff and HR Manager

**Secondary Actors**: None

**Pre-conditions**: The HR Staff or HR Manager must be logged in.

**Main Flow**:

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
|  | 1. System displays:   * First Name * Last Name * EMPID * Address * City * State * Zip Code * Phone Number * Department * Start Date |
| 2. The HR Staff or HR Manager fills in the following:   * First Name * Last Name * EMPID * Address * City * State * Zip Code * Phone Number * Department * Start Date |  |
| 3. The HR Staff or HR Manager clicks add | 4. System saves the employee information added by the actor |
|  | 5. System adds the employee record to the database |

**Post-conditions**: You have successfully added an employee record

**Alternate flows**:

* 3a. The actor clicks cancel
  + 4a. System returns to menu

**Use Case Name**: Delete Employee Record

**ID**: 3

**Brief Description**: This use case allows the HR Staff and Manager to delete an employee record in the system.

**Primary Actors**: HR Staff and HR Manager

**Secondary Actors**: None

**Pre-conditions**: The HR Staff or HR Manager must be logged in.

**Main Flow**:

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
|  | 1. System displays records that are saved in the database |
| 2. The HR Staff or HR Manager clicks on a record |  |
| 3. The HR Staff or HR Manager clicks on delete | 4. System deletes the record from the database |

**Post-conditions**: You have successfully delete the employee record

**Alternate flows**:

* 3a. The actor clicks cancel
  + 4a. System returns to menu

**Use Case Name**: Modify Employee Record

**ID**: 4

**Brief Description**: This use case allows the HR Staff and Manager to modify an employee record in the system.

**Primary Actors**: HR Staff and HR Manager

**Secondary Actors**: None

**Pre-conditions**: The HR Staff or HR Manager must be logged in.

**Main Flow**:

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
|  | 1. System displays:   * First Name * Last Name * EMPID * Address * City * State * Zip Code * Phone Number * Department * Start Date |
| 2. The HR Staff or HR Manager makes changes in one of the following:   * First Name * Last Name * EMPID * Address * City * State * Zip Code * Phone Number * Department * Start Date |  |
| 3. The HR Staff or HR Manager clicks save | 4. System saves the employee information added by the actor |
|  | 5. System adds the employee record to the database |

**Post-conditions**: You have successfully modified the employee record

**Alternate flows**:

* 3a. The actor clicks cancel
  + 4a. System returns to menu

**Use Case Name**: View Employee Record

**ID**: 5

**Brief Description**: This use case allows the HR Staff and Manager to view an employee record in the system.

**Primary Actors**: HR Staff and HR Manager

**Secondary Actors**: None

**Pre-conditions**: The HR Staff or HR Manager must be logged in.

**Main Flow**:

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
|  | 1. System displays:   * First Name * Last Name * EMPID * Address * City * State * Zip Code * Phone Number * Department * Start Date |
| 2. The HR Staff or HR Manager views the following:   * First Name * Last Name * EMPID * Address * City * State * Zip Code * Phone Number * Department * Start Date |  |

**Post-conditions**: None

**Alternate flows**:

* 3a. The actor clicks cancel
  + 4a. System returns to menu

**Use Case Name**: Search Employee Record

**ID**: 6

**Brief Description**: This use case allows the HR Staff and Manager to search for an employee record in the system.

**Primary Actors**: HR Staff and HR Manager

**Secondary Actors**: None

**Pre-conditions**: The HR Staff or HR Manager must be logged in.

**Main Flow**:

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
|  | 1. System displays:   * Search by First Name, Last Name * Search by EmployeeID |
| 2. The HR Staff or HR Manager searches for one of the following in the textbox:   * First Name and Last Name * EmployeeID |  |
| 3. The HR Staff or HR Manager clicks to complete the search | 4. System searches for the matching record |
|  | 5. System displays the matching record |

**Post-conditions**: None

**Alternate flows**:

* 3a. The actor clicks cancel
  + 4a. System returns to menu
* 5a. The system does not find a matching record

**Use Case Name**: View Reporting Module

**ID**: 7

**Brief Description**: This use case allows the actor to view the report of all employees entered in the database

**Primary Actors**: HR Staff, HR Manager, and an Executive

**Secondary Actors**: None

**Pre-conditions**: The HR Staff, HR Manager, and or Executive must have a username and password.

**Main Flow**:

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
|  | 1. System displays all users in the database |
| 2. The HR Staff, HR Manager, or Executive views the report |  |
| 3. The HR Staff, HR Manager, or Executive clicks cancel | 4. System returns to menu |
|  |  |

**Post-conditions**: None

**Alternate flows**: None

**Use Case Name**: Print Reporting Module

**ID**: 8

**Brief Description**: This use case allows the actor to print the report of all employees entered in the database

**Primary Actors**: Executive

**Secondary Actors**: None

**Pre-conditions**: Executive must have a username and password.

**Main Flow**:

|  |  |
| --- | --- |
| **Actor Action** | **System Response** |
|  | 1. System displays report of all users in the database as print preview |
| 2. Executive prints the report |  |
| 3. The HR Staff, HR Manager, or Executive clicks cancel | 4. System returns to menu |
|  |  |

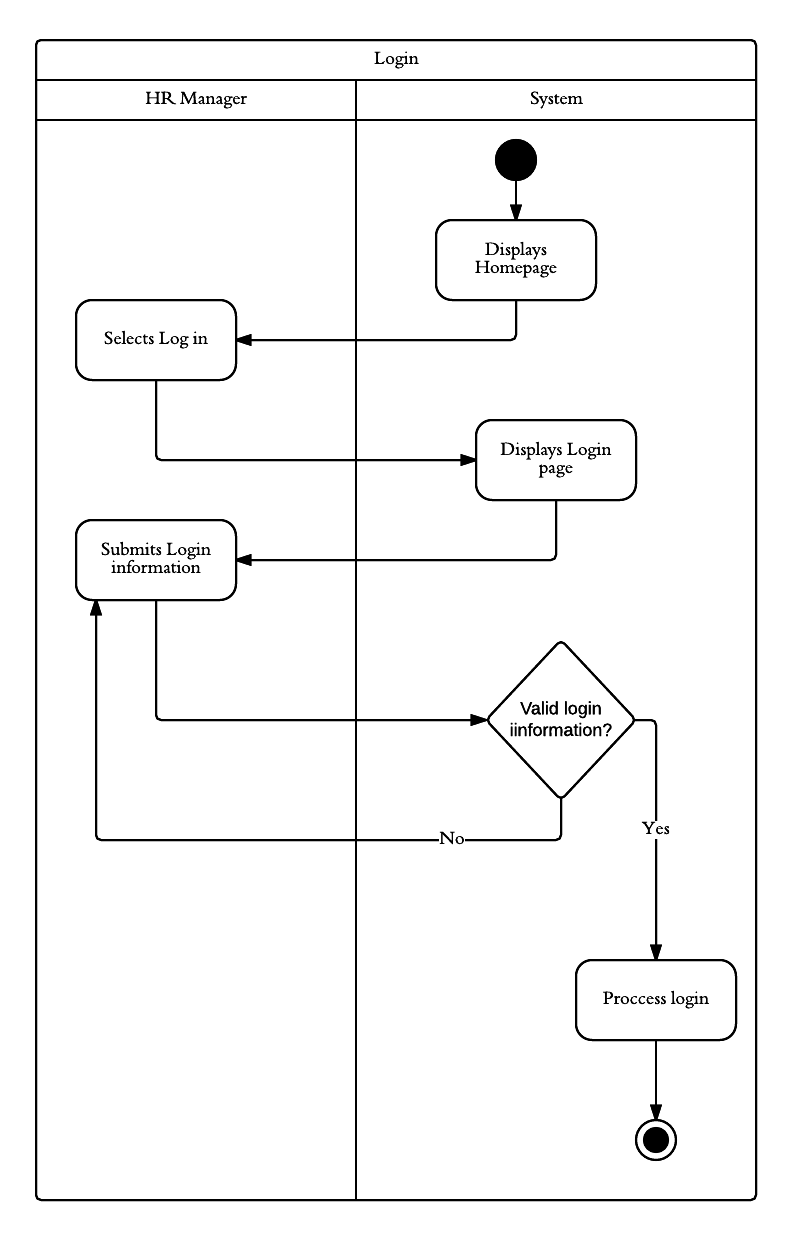
**Post-conditions**: None

**Alternate flows**: None

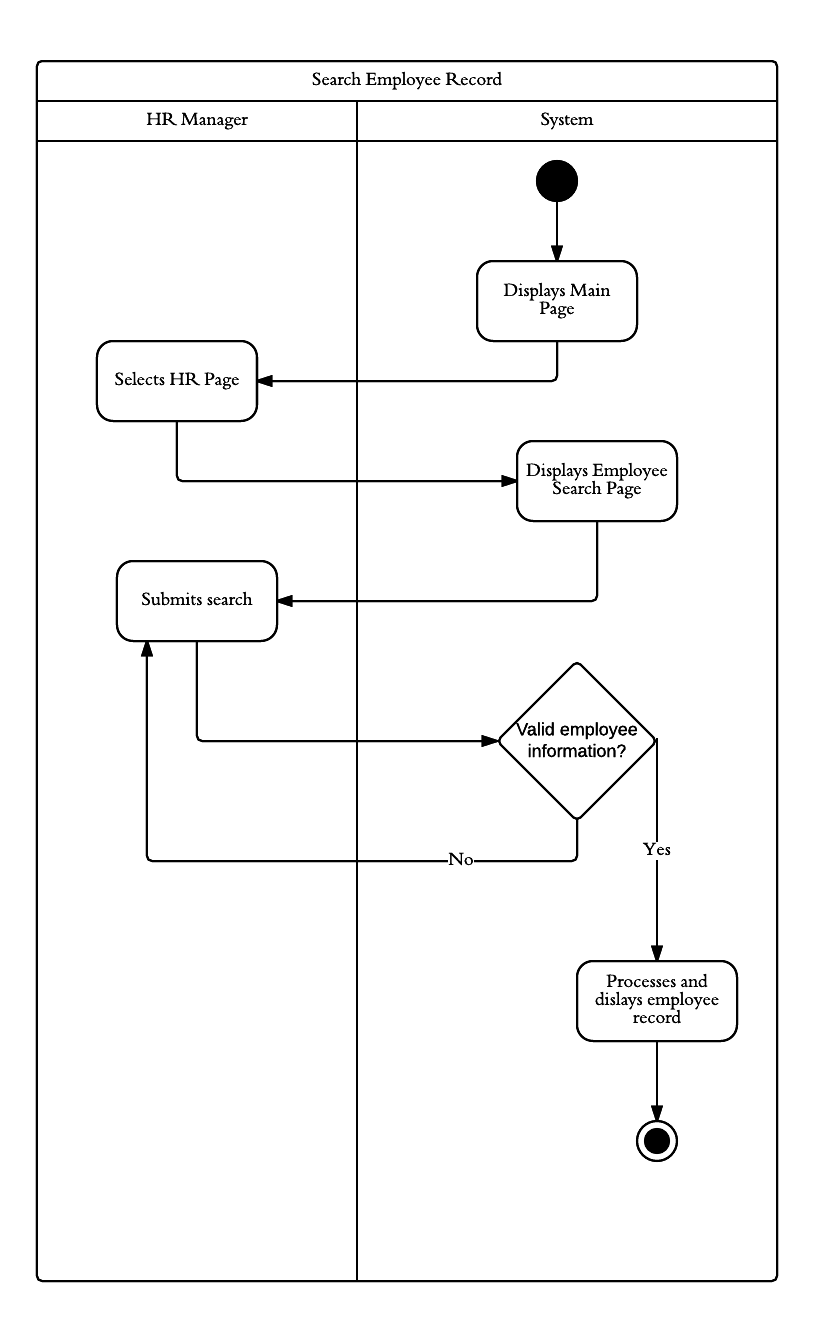
**Class Diagram**



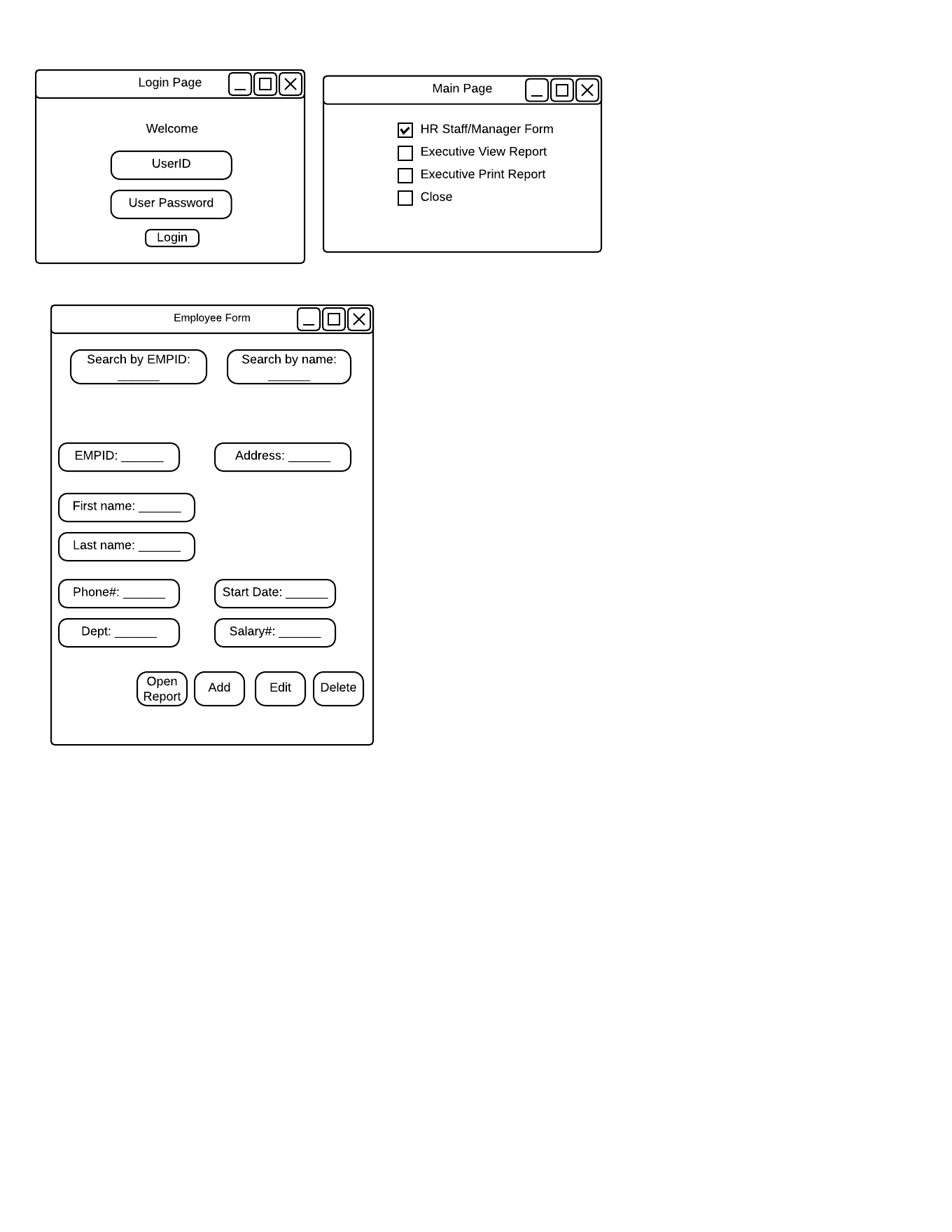
**Activity Diagram 1: (Login)**



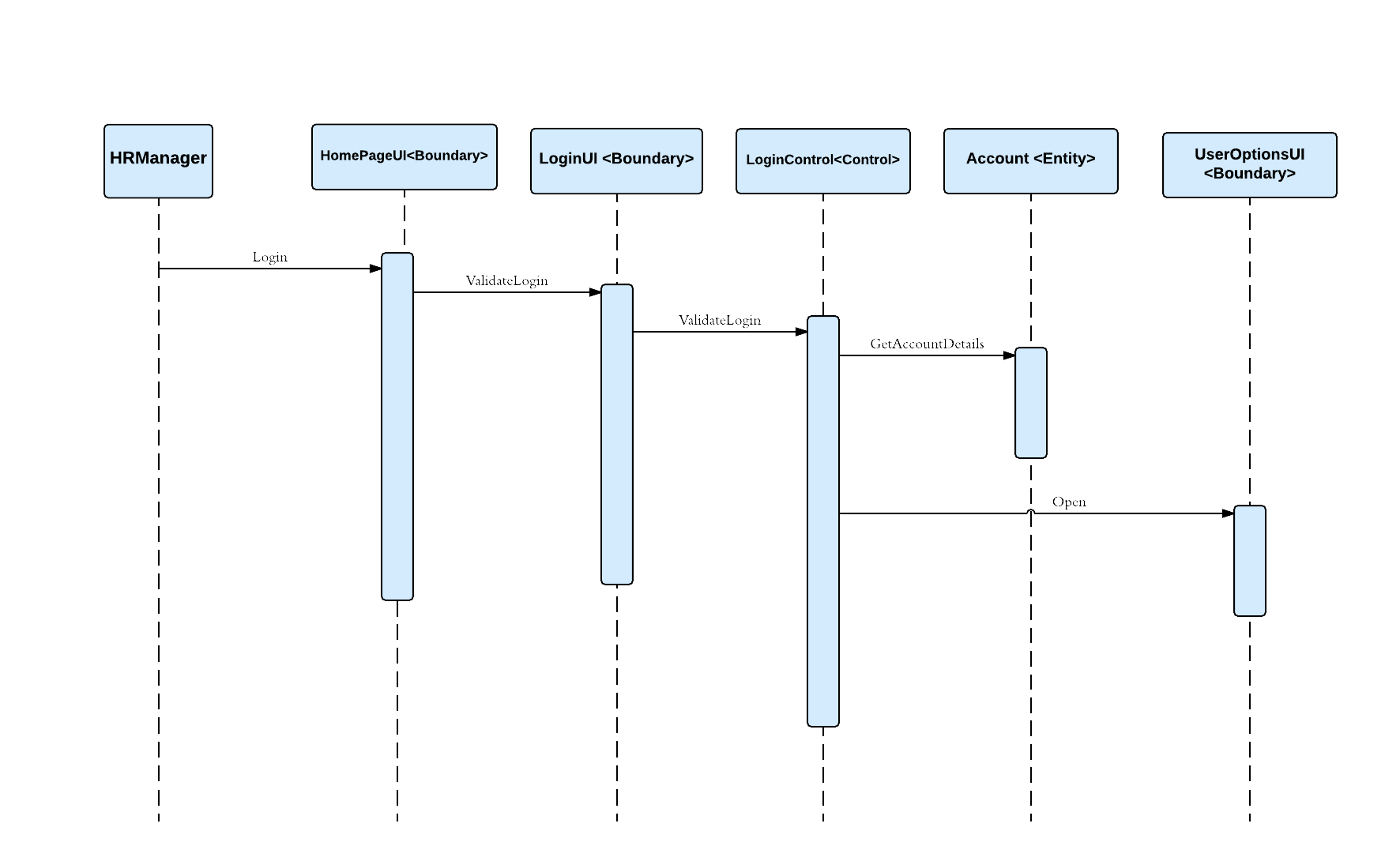
**Activity Diagram 2: (Search Employee Record)**



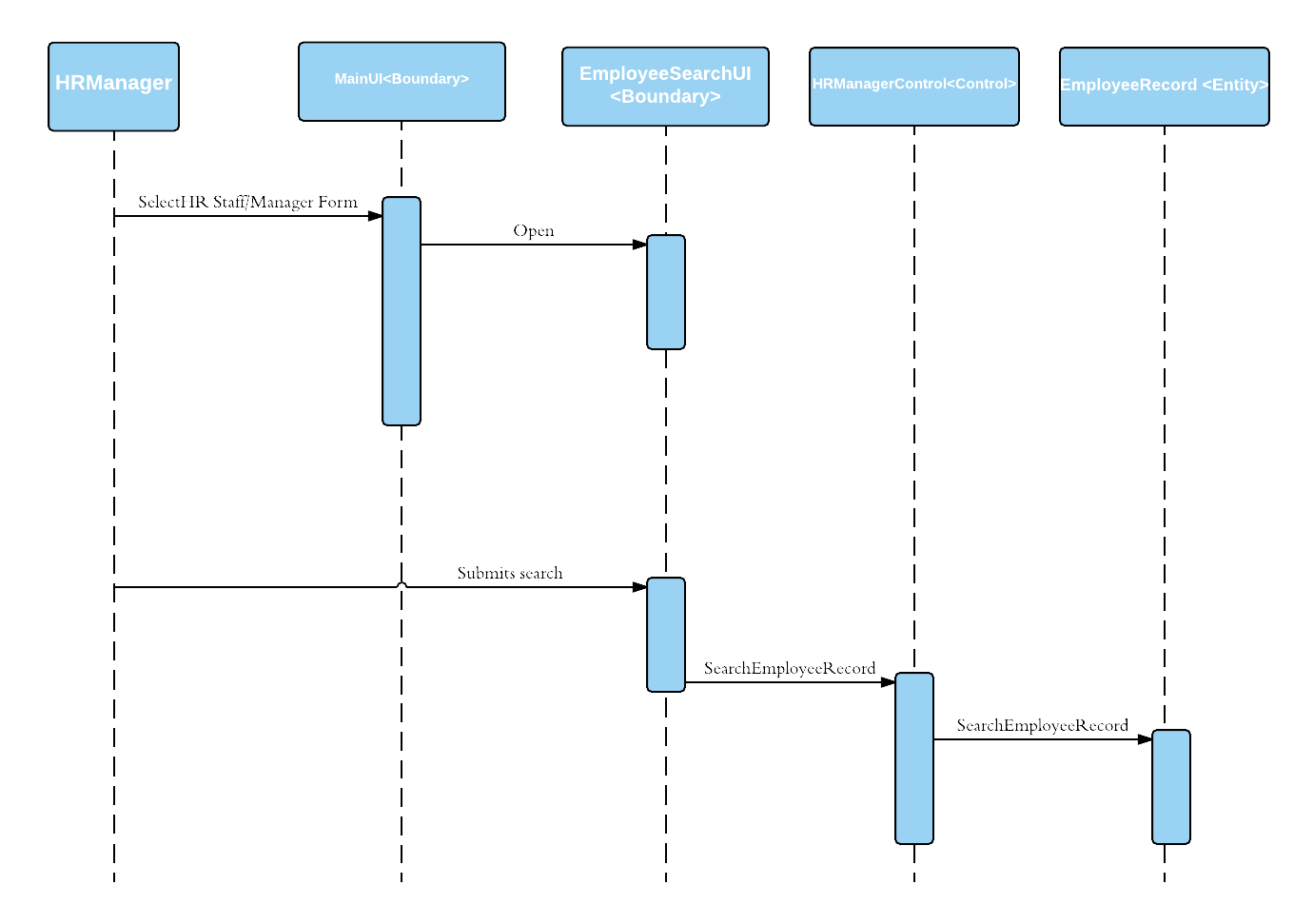
**UI Mockups (references for sequence diagrams)**



**Sequence Diagram 1: (Login)**



**Sequence Diagram 2: (Search Employee Record)**



**Data Dictionary**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P/F | Field Name | Found In | Data Type | Field Size | Notes |
| F | firstName | User class | text | 50 | First name of user |
| F | lastName | User class | text | 50 | Last name of user |
| P | ID | User class | int | 10 | User’s ID |
| F | password | User class | text | 50 | User’s password |
| P | empID | Employee Record class | int | 10 | Employee’s ID |
| F | empFName | Employee Record class | text | 50 | Employee’s first name |
| F | empLName | Employee Record class | text | 50 | Employee’s last name |
| F | address | Employee Record class | text | 100 | Employee’s address |
| F | city | Employee Record class | text | 50 | Employee’s city of residence |
| F | state | Employee Record class | text | 50 | Employee’s state of residence |
| F | zipCode | Employee Record class | text | 10 | Employee’s zip code of residence |
| F | phoneNumber | Employee Record class | text | 20 | Employee’s phone number |
| F | department | Employee Record class | text | 50 | Employee’s department |
| F | startDate | Employee Record class | Date/Time | 50 | Start date of an employee |
| F | salary | Employee Record class | double | 100 | Employee’s salary |
| F | accountID | Account class | int | 10 | Account ID |

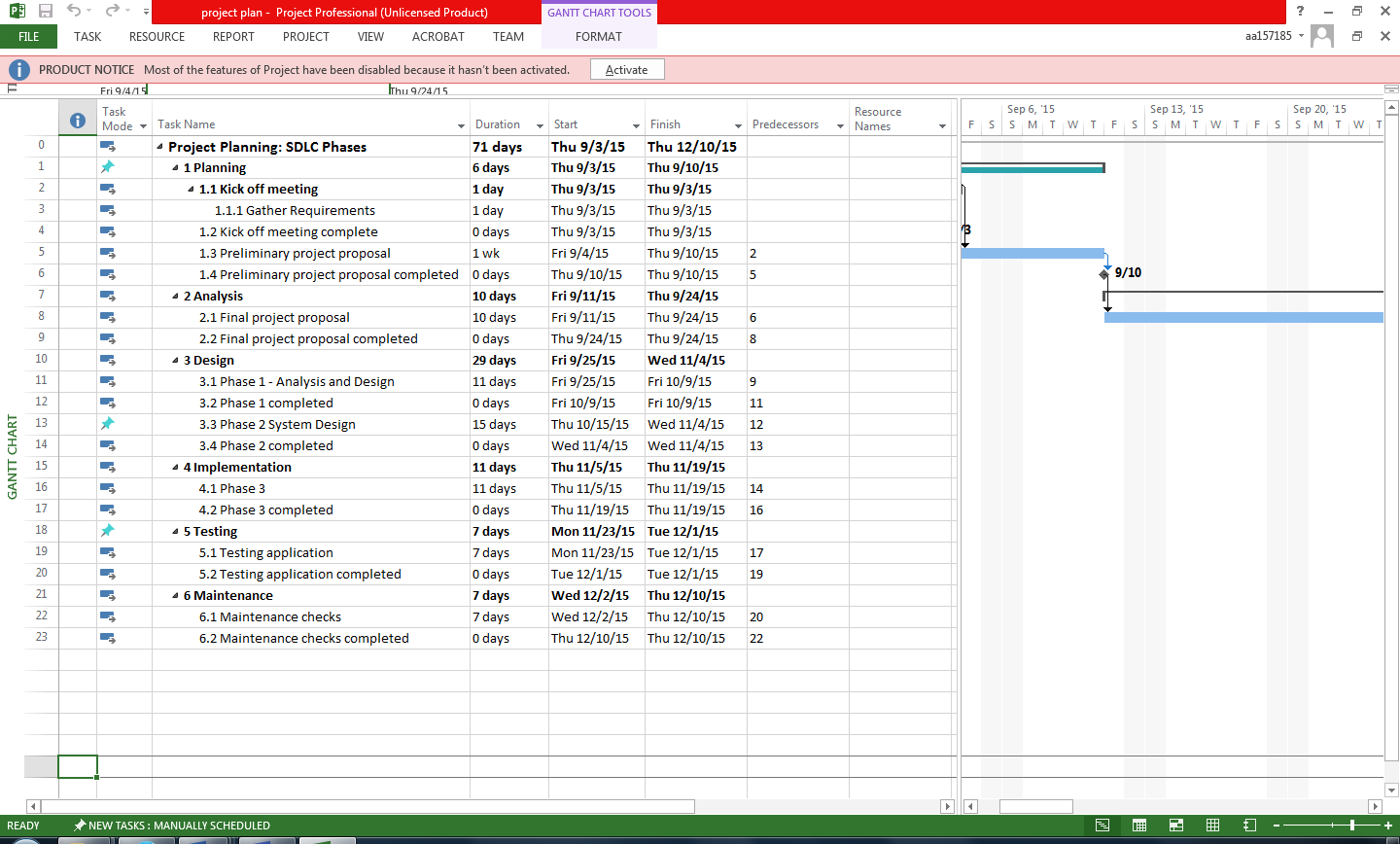
**\*P/F = Primary vs Foreign Keys**

**Data types are referenced using: http://www.w3schools.com/sql/sql\_datatypes.asp**

**Requirements Traceability Matrix**

|  |  |  |  |
| --- | --- | --- | --- |
| Requirement # | Requirement | Use Case # | Use Case |
| R1 | User can access system | U1 | Login |
| R2 | User can add employee records | U2 | Add Employee Record |
| R3 | User can delete employee records | U3 | Delete Employee Record |
| R4 | User can modify employee records | U4 | Modify Employee Record |
| R5 | User can view employee records | U5 | View Employee Record |
| R6 | User can search employee records | U6 | Search Employee Record |
| R7 | User can view reporting module | U7 | View Reporting Module |
| R8 | User can print reporting module | U8 | Print Reporting Module |

**Project Plan**



**Summary Phase II:**

The following report will cover the system design phase of 'Employee Tracker.' As a continuation of analysis and requirements stage, ‘Employee Trackers’ main objective remains unchanged; it will produce a Microsoft Access based program that will digitize employee information for Carnegie’s Steel Inc. Based on the use case diagrams, use case descriptions and other planning tools from the previous stage, this design stage will draft visualized menu hierarchy, user-system interactions, and technical outline for implementation with query design and more.

To better understand the program’s workflow, menu hierarchy on page 34 will display all functionalities within ‘Employee Tracker.’ The interaction between a user and this program begins by the user starting this program. She may then log on and utilize this program as necessary.

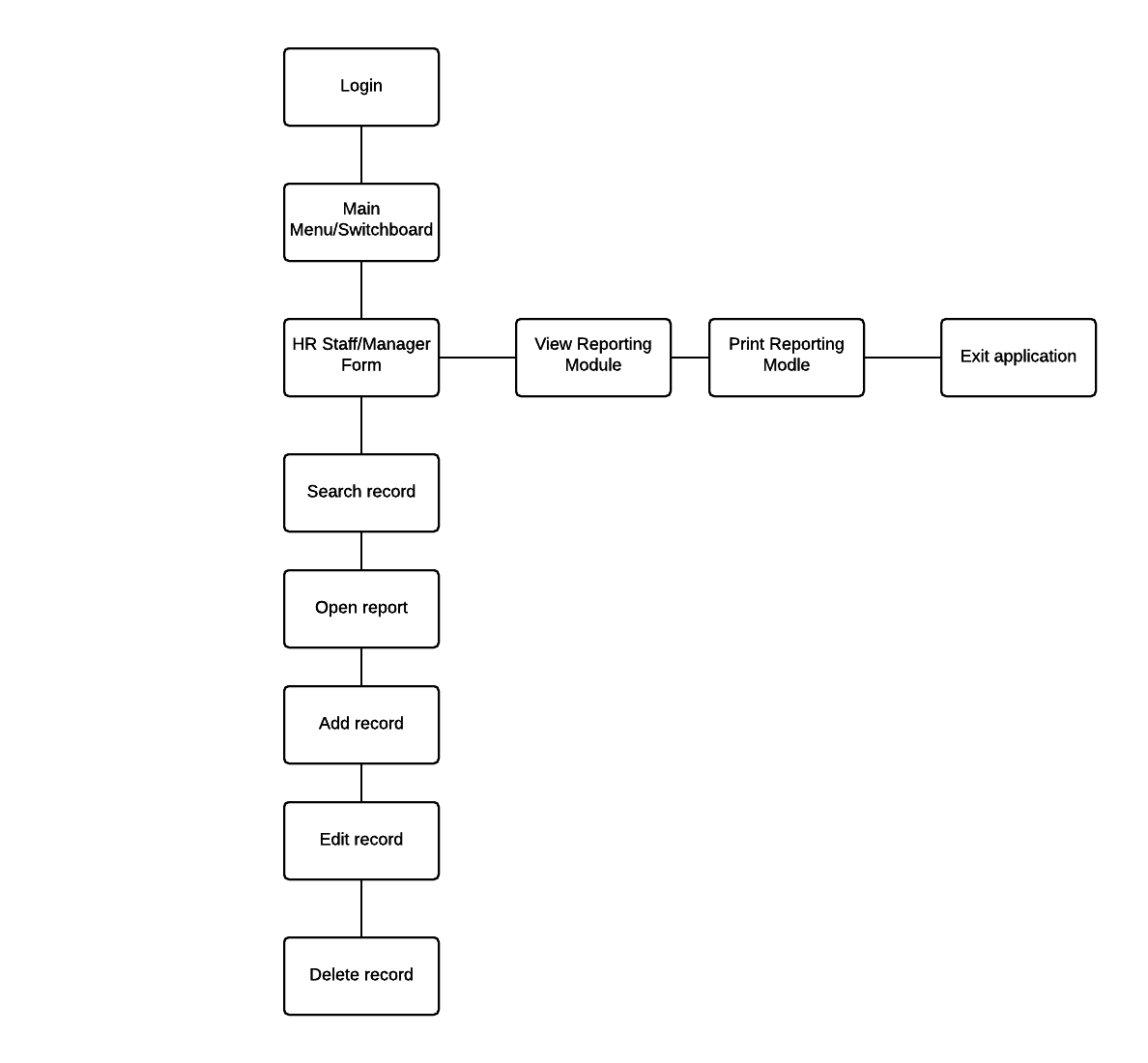
User interface follows on page 35. The login page, full list of functionalities, and the HR Staff/Manager form are shown with user interface mockups. Simplicity is emphasized to eliminate any user inconvenience, but aesthetics improvements are pending.

Then there is the query design on page 36-37. This section will cover a couple examples of SQL (structured query language) statements which will be used in implementation stage to execute the commands needed.

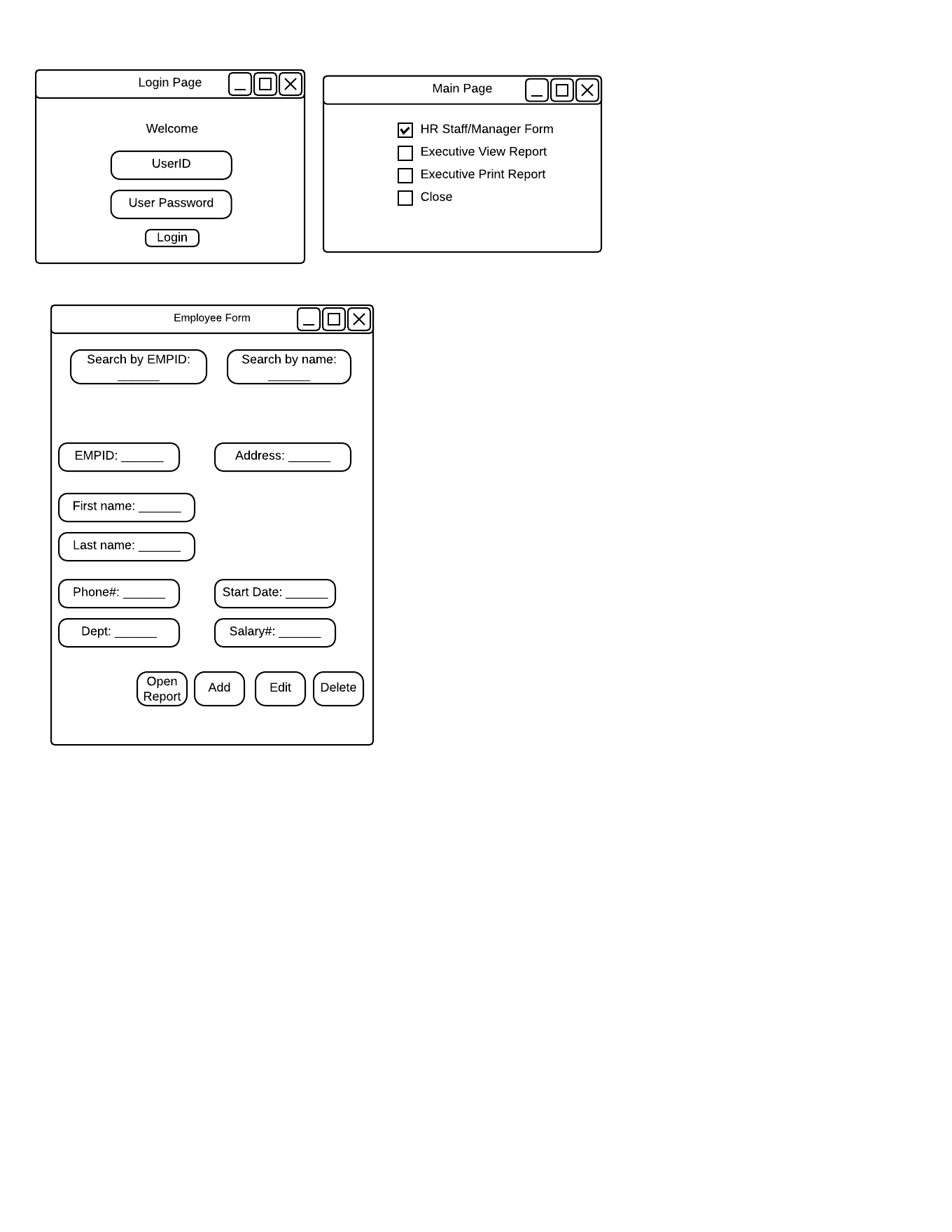
Following the query design is the report design on page 38. Report created using the aforementioned queries is shown. The nature of documenting information encourages simplicity, so aesthetic focus will transfer to user interfaces.

Finally, the team meeting log will conclude this report. Major update is our loss of Kevin, but there won’t be drastic changes resulting from it (though Kevin will be greatly missed). Group 6 has been working great in harmony. However, implementation stage will require extra meetings in the future.

**Menu Hierarchy**



**User Interface**

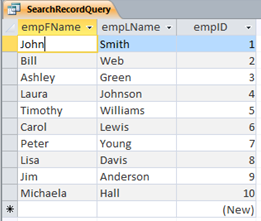


**Query Design**

**Search Employee Record Query**

SELECT empFName, empLName, empID

FROM Employee;



**Add Employee Record Query**

An example of adding an employee record is as follows, the record will be added at the end of the pre-existing data:

INSERT INTO Employee ( empFName, empLName, Address, City, State, ZipCode, PhoneNumber, Department, StartDate, Salary )

VALUES ("Alice", "Walker", "11 Street", "NY", "NY", "10030", "555-555-5555", "Production", "10/1/2013", 40000);



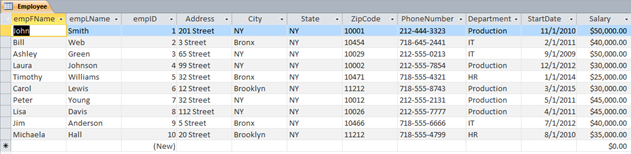
**Delete Employee Record Query**

An example of deleting an employee record is as follows: The system will displays records that are saved in the database, the record chosen will then be deleted from the database.

DELETE \*

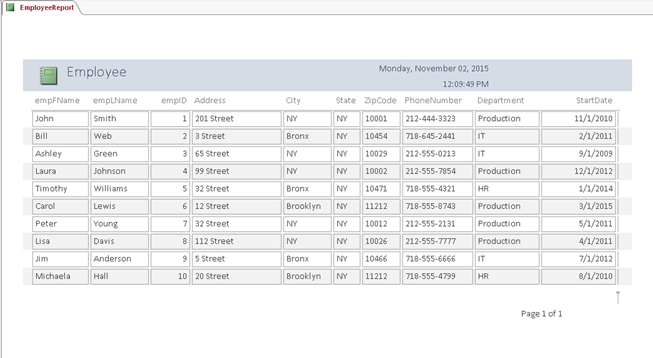
FROM Employee

WHERE empFName = "Alice" AND empLName = "Walker";



**Report Design**

Report Screenshot



**Team Meeting Minutes**

|  |  |  |
| --- | --- | --- |
| **Meeting Date: 10/28/15** | **Meeting Time: 3:00pm** | **Meeting Type:**  **Face-to-Face** |

|  |  |
| --- | --- |
| **Project Name: Data Trackers** | **Group #/Team Name: Group 6** |

|  |  |
| --- | --- |
| **Meeting Facilitator: Jaehan Jeong** | **Meeting Minutes Recorder: Jaehan Jeong** |

|  |
| --- |
| **Meeting Objective: Design phase clarification** |

|  |  |  |
| --- | --- | --- |
| **Attendees** | **Absentee** | **Excused Absence (Y/N)** |
| Jaehan Jeon |  |  |
| Angelyn Arthur |  |  |
| Ives Wu |  |  |
|  | Kevin Merslich | Yes |
|  |  |  |

|  |  |
| --- | --- |
| **Topics Discussed/Tasks Accomplished** | **Responsibly Team Member(s)** |
| Task distribution for design report | All |
| Revised menu hierarchy | All |
| Revised user interface design | All |
| Reviewed report summary1 based on professor feedback | All |
| Explored the feasibility of Microsoft Access | All |
|  |  |

|  |  |
| --- | --- |
| **Decisions Made** | **Responsibly Team Member(s)** |
| Microsoft Access will be heavily used | All |
| Individual tasks distributed for design stage | All |
| Keep both ‘view reporting module’ and ‘view emp record’ | All |
| Further program direction will be clarified as we continue development. | All |

|  |  |  |
| --- | --- | --- |
| **Action Item/Tasks Assigned** | **Assigned To** | **Due Date** |
| User Interface | Ives | 11/4/15 |
| Query Design | Angelyn | 11/4/15 |
| Summary | Jaehan | 11/4/15 |
| Report Design | Angelyn | 11/4/15 |
| Revise Feedbacks from part 1 | Jaehan, Ives | End of Sem |
|  |  |  |

|  |
| --- |
| **Meeting End Time: 4:05PM** |

|  |
| --- |
| **Next Meeting Date and Time: 11/04/15 After class** |

**Project Team Members Names and Signature:**

|  |  |  |
| --- | --- | --- |
| **Name (print)** | **Signature** | **Date** |
| **Jaehan Jeong** | ***Jaehan Jeong*** | **10/28/15** |
| **Angelyn Arthur** | ***Angelyn Arthur*** | **10/28/15** |
| **Ives Wu** | ***Ives Wu*** | **10/28/15** |

**Summary Phase III:**

The following report will delve into the implementation phase of 'Employee Tracker.'

Employee Tracker’s objective of digitizing employee information is finalized and will remain so until urgent change is needed. Using the guidelines from design phase, implementation stage will specify the system requirements recommended for the end users. Then, testing plans, training plans, implementation plan, and support plans will be explained in details to help smooth out the implementation of Employee Tracker.

Beginning of implementation on page 42 lists the system requirements to ensure program compatibility for the end users. Specifically, hardware and software requirement, along with respective estimated cost is outlined.

Page 43 begins the test plan of Employee Tracker. List of various testing methodologies is presented at the top. With the functional requirements paired with use cases, testers can easily track any remaining functional defects. Depth of information delineating testing schedules, testing members and more will be documented.

Following the test plan is the training plan on page 46. This section is similar to test plan; methodology for training plan is described upfront, and training requirements proceed. Then, training schedule will conclude the training section of this report.

Finally, the physical sequencing of the implementation is presented on page 48. Starting with the deployment diagram, this section will combine every aspect of implementation stage as a whole, detailing precise execution plans. Employee Tracker going “live” will signal the end of implementation and the start of support stage where necessary adjustments are made to sustain Employee Tracker’s success.

Although implementation itself is the peak of this entire project, supporting plans on page 49 will serve as a critical cornerstone to maintaining the quality of Employee Tracker. Customer relationships will be valued and thus will be bolstered with substantial customer support in forms of emails, phone calls and staff allocation.

**Hardware / Software**

To allow a user the full access to use Employee Tracker, the following list shows the required hardware and software.

Hardware

* A fully functional desktop computer (or any other type of computer that can run Microsoft Access).

Software

* Microsoft Access program purchasable through Microsoft website.

Cost Estimate:

Hardware:

According to an online statistics survey website, Statista.com (“http://www.statista.com/statistics/203759/average-selling-price-of-desktop-pcs-worldwide/”), the average desktop computer price in year 2015 was $379. Because most desktop computers are bundled with keyboard, mouse and other necessary devices, the total hardware cost will be estimated as $379.

Software:

According to Microsoft Office’s official products page (“<https://products.office.com/en-us/buy/office>”), the only one-time-purchase bundle that includes Microsoft Access is priced at $399.99. Alternatively, the user may purchase subscriptions that cost $7 per month or $10 per month for the duration needed. To account for perpetual use of Microsoft Office, $399.99 is the total software cost estimate.

In total, the user needs to invest $779 to acquire necessary hardware and software to run Employee Tracker.

**Interface**

The use of a third party entity will not be required in our application so there will be no need of an interface.

**Test Plan**

Employee Tracker will employ the following list of testing methodologies to ensure the functionality, quality, and security of the project.

1. Black box testing
2. Unit Testing
3. Incremental integration testing
4. Integration testing
5. Functional testing
6. End-to-end testing
7. Regression testing
8. Acceptance testing
9. Usability testing
10. Performance testing

**Pairs of requirement (left) and use cases (right)**

User can access system - Login

User can add employee records - Add employee record

User can delete employee records - Delete employee record

User can modify employee records - Modify employee record

User can view employee records - View employee record

User can search employee records - Search Employee record

User can view reporting module - View reporting module

User can print reporting module - Print reporting module

All of the above use cases are designed into Employee Tracker as clickable buttons (functions). Testers and developers will collaborate to verify the full functionality of every use case. Black box, integration, unit, acceptance, functional and performance will aspire to eliminate any obvious bugs and system malfunction. Then, incremental integration testing will be applied whenever there’s an update to keep Employee Tracker as infallible as possible. As the conclusion of testing stage, testing team will conduct an end-to-end testing where we test Employee Tracker with hypothetical scenarios. By the end of the testing stage, most, if not all functionality of this program will be running perfectly.

**Testing Schedule/Timeframe**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task Name** | **Duration** | **Owner** | **Comments** |
| **Test Planning** | **1 weeks** | **Everyone** |  |
| **Prepare database** | **3 days** | **Everyone** | Certain tasks will be performed simultaneously within the duration. |
| Review Requirements documents | 1 day | Everyone | Google docs for all the required documents |
| Create initial test estimates | 1 day | Jaehan |  |
| Review required software (MS Access) | 2 days | Everyone |  |
| Integrate records into DB | 1 day | Angelyn |  |
| Apply login system (profiles) | 1 day | Ives |  |
| **Implement Database System** | **1 days** | **Everyone** |  |
| Deploy to Staging environment | 1 day | Everyone |  |
| **Testing** | **2 days** | Everyone |  |
| Black box, unit, incremental integration, integration, functional testing | 1 day | Everyone |  |
| End-to-end, regression, acceptance, usability, performance testing | 1 day | Everyone |  |
| **Release to Production (live)** | **1 day** | Everyone |  |

Members Performing Testing:

All of the developers, Angelyn, Ives, and Jaehan will be involved in the testing stage. Ideally, we would like to ask some students from our class or other sections of CIS 5800 to test for user experience and basic functionality.

How testing results will support the reliability and project acceptance criteria

Developers hope to achieve convincing results from all 10 of testing methods. However, upon failure of more than 4 tests, Employee Tracker will be rejected of its acceptability. Although highly unlikely, in the case of project rejection, certain project requirements may be modified to meet the requirements within the given deadline. If Employee Tracker passes most of (8 or above) testing methodologies, that would deem it safe to distribute the product because these tests are designed to ensure the reliability and acceptability of the finished product.

**Training**

Training Plan - Approach

1. Training is performed to ensure that the staff is efficient enough in operating an Access database, which will be used in our application. Our goal in training the staff will be to make sure everyone will be able to perform the activities they will need in maintaining the application for the organization, as well as preparing the staff to handle troubleshooting in case of any technical difficulties.

2. Training material needed is a computer that is equipped with the Access software. Considering the fact that the implementation of our application for the organization will be something they haven’t previously encountered, we plan to work closely with the staff during the training process in order to prepare them for any problem they may be faced with.

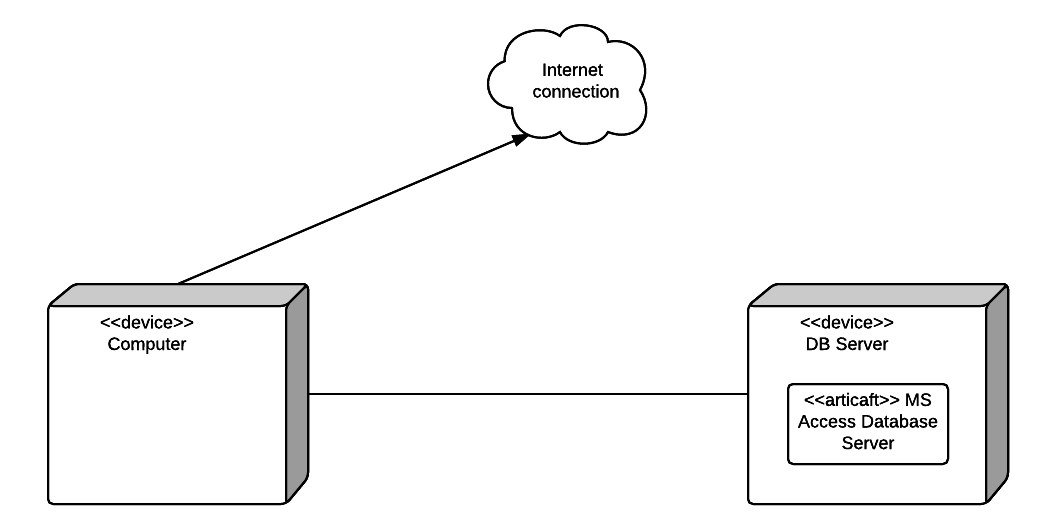
**Training Schedule**

\*All developers–Angelyn, Ives and Jaehan will be part of the training process and will closely work with the staff.

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **Content** | **Day** | **Time** |
| **Introduction** | * Who we are? * What we do? * Why we’re here | Day 1 | 9:00 AM - 9:30 AM |
| **Intro to MS Access** | Teach basics of MS Access | 9:30 AM - 10:30 AM |
| **15 MINUTE BREAK** | | **10:30 AM - 10:45 AM** |
| **Employee Tracker** | * What is Employee Tracker? * Reason for the change * How it will impact the organization * Quick Demo | 10:45 AM - 12:00 PM |
| **Review** | * Recap day 1 | Day 2 | 9:00 AM - 9:30 AM |
| **In-depth Tutorial** | * General staff session | 9:30 AM - 10:45 AM |
| **15 MINUTE BREAK** | | **10:45 AM - 11:00 AM** |
| **In-depth Tutorial** | * Department heads session | 11:00 AM - 11:30 AM |
| **Post-training workshop (General Staff)** | * Questions * Using Employee Tracker for work | Day 3 | 9:00 AM - 10:30 AM |
| **15 MINUTE BREAK** | | **10:30 - 10:45 AM** |
| **Post-training workshop (Department Heads)** | * Questions * Using Employee Tracker for work | 10:45 AM - 11:00 AM |

**Implementation**

Deployment diagram:



**Note: If MS Access is not previously installed on the computers an internet connection will be needed when purchasing the MS Access software to use our application.**

* Carnegie’s Steel Inc. will cut-over and start using Employee Tracker starting in December 17th, 2015
* Employee Tracker will be allowed to go live once it passes more than 8 tests.
* Employee Tracker will be a one-time roll out for all departments.
* Customers and stakeholders will be notified via email two weeks before Employee Tracker goes live.

**Support Plan**

After the “go-live” period, the application and project will initially be maintained through weekly monitoring to ensure that everything is running smoothly. Going forward, the amount of monitoring needed will be adjusted accordingly.

To guarantee that the application after the “go-live” timeframe continues to run smoothly, we will offer support to the staff; this will include telephone, online and email contact where the staff can contact us for any immediate technical support.

**Team Meeting Minutes**

|  |  |  |
| --- | --- | --- |
| **Meeting Date: 11/18/2015** | **Meeting Time: 2:40** | **Meeting Type:**  **Face-to-Face** |

|  |  |
| --- | --- |
| **Project Name: Employee Tracker** | **Group #/Team Name: Group 6** |

|  |  |
| --- | --- |
| **Meeting Facilitator: Angelyn Arthur** | **Meeting Minutes Recorder: Jaehan Jeong** |

|  |
| --- |
| **Meeting Objective: Work on phase 3 / (And maybe start on Access)** |

|  |  |  |
| --- | --- | --- |
| **Attendees** | **Absentee** | **Excused Absence (Y/N)** |
| Angelyn Arthur |  |  |
| Jaehan Jeong |  |  |
| Ives Wu |  |  |

|  |  |
| --- | --- |
| **Topics Discussed/Tasks Accomplished** | **Responsibly Team Member(s)** |
| Create deployment diagram | Everyone |
| Continue working on Report Phase 3: Implementation | Everyone |
| Finished testing schedule | Everyone |
| Finished training schedule | Everyone |
|  |  |
|  |  |

|  |  |
| --- | --- |
| **Decisions Made** | **Responsibly Team Member(s)** |
| Interface not required | Everyone |
| Test scheduling methodology | Everyone |

|  |  |  |
| --- | --- | --- |
| **Action Item/Tasks Assigned** | **Assigned To** | **Due Date** |
| Summary revision | Jaehan |  |
| Revision for previous phases | Everyone |  |

|  |
| --- |
| **Meeting End Time: 4:00PM** |

|  |
| --- |
| **Next Meeting Date and Time: To be decided** |

**Project Team Members Names and Signature:**

|  |  |  |
| --- | --- | --- |
| **Name (print)** | **Signature** | **Date** |
| **Jaehan Jeong** | ***Jaehan Jeong*** | **11/18/15** |
| **Ives Wu** | ***Ives Wu*** | **11/18/15** |
| **Angelyn Arthur** | ***Angelyn Arthur*** | **11/18/15** |

**Executive Summary**

The Mission Statement

Data Tracker.Inc is a database startup dedicated to creating efficient, reliable and practical databases for small businesses. Information technology is rapidly evolving, but small businesses often lack resources to build the most advanced infrastructures. Therefore, Data Tracker aims to target their needs by providing quality databases for affordable prices.

Company Information

Data Tracker currently consists of three motivated Baruch students. Jaehan Jeong has the role of database administrator, working closely with database to ensure product functionality. Angelyn Arthur is working as the systems analyst, probing for the optimal system design. And Ives Wu is the user interface designer, allowing users to approach our database more easily and pleasantly. As a recent startup, we all work closely together and utilize cross-training so that any problem encountered is solved with team effort.

Products / Services

Data Tracker’s main product is simple database aimed towards small to medium sized firms. In the project “Employee Tracker” discussed in this report, we created a database for human resources department in Carnegie’s Steel.Inc. Because of the nature of our target market, we’re able to create customized database for each company while keeping the cost minimal.

Financial Information and Growth

As a fledgling startup, Data Trackers has yet to require any additional funding, but we still managed to satisfy Carnegie’s Steel.Inc’s human resources department with “Employee Tracker”. We hope to expand our influence to all small business in New York City and grow nationwide. Any company in any industry will be working with data, so utilizing Data Tracker’s databases will facilitate research and growth for small companies. In short, there’s much room for growth.

Summarize Future Plans

Data Tracker is happy to start the journey with simple and useful databases geared towards small firms. In the future, however, we hope to utilize cloud computing technologies to eliminate our dependency on Microsoft Access and allow access to our database service simply with an internet connection. Members of our team are fervently studying to bring that to reality, and we’re looking to hire talented individuals to help us with cyber security.

**Summary Phase** **IV:**

This report will be the final report for project Employee Tracker, a database product for Carnegie’s Steel.Inc, aiming to digitize employee information. Main components of this report will be the following (in sequence): revision history, used code, variance from original specifications, proposed modifications, and lessons learned. A meeting log will also be included in this report to conclude the project Employee Tracker.

Revision history section on page 54 documents how the work was distributed to members of the team and when the work was done. For clarifications, this section does not include revisions for any previous reports as they have been attached at the beginning of this report.

Used code section follows on page 55. Ives Wu’s code is included, and the code is part of Employee Tracker database.

Page 56 contains information about the variance from original specifications. There were minimal changes made to original specifications, but most were to improve project quality.

Even though Employee Tracker is successfully finished, there is still room for improvements. Page 57 lists proposed modifications that would enhance Employee Tracker to further satisfy future customers using Data Tracker’s service.

Finally, on page 58, lessons learned are listed. There’s a lot to be learned from this short but dense project, and members of Data Trackers documented our thoughts to help future selves as well as others to perform better and more smoothly.

After lessons learned section, meeting logs for the final phase are attached.

**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| Section Number | Date Completed | Section Title | Author |
| 1 | 12/13/15 | Executive Summary | Jaehan Jeong |
| 2 | 12/13/15 | Used Code | Ives Wu |
| 3 | 12/12/15 | Variance from original specifications | Angelyn Arthur |
| 4 | 12/13/15 | Proposed modifications | Jaehan Jeong |
| 5 | 12/11/2015 | Lessons Learned | Angelyn Arthur |
| 6 | 12/10/15 | Revisions for previous phases | Angelyn Arthur |
| 7 |  |  |  |
| 8 |  |  |  |
| 9 |  |  |  |

**Used Codes**

Here are two snippets of code for the project Employee Tracker, written by Ives Wu.

**Function for popup/login**

Private Sub Command1\_Click()

UserName.SetFocus

If UserName = "staff" And Password = "staff" Then

MsgBox "Welcome!", vbInformation, "EmployeeTracker"

MsgBox "Please be sure to save the data before closing the database.", vbInformation, "EmployeeTracker"

DoCmd.Close

DoCmd.OpenForm "Switchboard"

ElseIf UserName = "executive" And Password = "executive" Then

MsgBox "Welcome!", vbInformation, "EmployeeTracker"

MsgBox "Please be careful not to tamper with the data."

DoCmd.Close

DoCmd.OpenForm "Switchboard"

Else

MsgBox "Please re-enter your Username and Password."

End If

End Sub

**Function for View Report Module Print Mode**

Function View\_Report\_Module\_Print()

On Error GoTo View\_Report\_Module\_Print\_Err

   DoCmd.OpenReport "View Report Module", acViewPreview, "", "", acNormal

View\_Report\_Module\_Print\_Exit:

   Exit Function

View\_Report\_Module\_Print\_Err:

   MsgBox Error$

   Resume View\_Report\_Module\_Print\_Exit

End Function

**Variance from Original Specifications**

There were three minor changes made to Employee Tracker: system design changes to reflect finished database, removal of project requirement - database trackability for company legal teams, and redistribution of workload among Data Tracker members due to Kevin Merslich’s unfortunate departure.

In any project, unexpected changes are inevitable. Data Tracker team agreed on original system designs, but as we iterated through project phases, countless improvements were found. Consequently we improved our designs accordingly to match our final product.

Another change was removal of database trackability for company legal teams. At first we thought this feature would enhance security aspect of Employee Tracker. However, addition of login feature that differentiated administrator and regular employee sufficed given time constraint.

Finally, Kevin Merslich’s departure from our team was an unexpected change. Fortunately Employee Tracker’s project scale was small enough to dodge major pressure, but adjusting immediately required Data Trackers to communicate and reallocate our responsibilities.

**Proposed Modifications**

Employee Tracker has immense room for growth. Major areas of improvements include the design aspect, functional aspect, and scale aspect.

In designing Employee Tracker, we have utilized much of Microsoft Access’ available tools. Unfortunately, we have reached its limits and are hoping to explore new alternatives that will satisfy our design preferences.

Data Tracker team is happy with Employee Tracker’s functional capacity. For any small-mid-sized firm, our database should be able to perform necessary duties. However, as we aim to scale larger, web based database system will become imperative. To transfer our system to the cloud, knowledge of web framework and web application will be required.

Once our system is securely moved to the cloud, customizing databases will be automatically options and system will be more easily spread to online users from all around the world.

**Lessons Learned**

The project areas that the team executed well included being able to effectively collaborate when it came to the written project phases. We achieved this by setting up a google document in which we all participated in formulating our work in place of face to face meetups. In addition, the team was able to adjust to project changes, which included losing a member as well as altering requirements of the project to better suit the team’s skills.

An aspect we could have improved on as a team was to schedule more face to face meetings. Although the team had no issues and performed smoothly when it came to exchanging work online for the project phases, not meeting face to face seemed to pose for some issues when it came to actually working on the application. It would have been beneficial to our application to have had a few more face to face meetings to further develop and explore our ideas.

An outcome that we’ve gained from working on this project was that the team gained more experience and knowledge working on a long term project. This project helped us to better understand and be prepared for the level of work, adjustments, and communication that comes with long term team projects. Furthermore, we understood the importance of communication and collaboration. It was essential that all team members were in accordance with each other when it came to any project changes or alterations and having constant communication assured everyone was up to date.

Something that we would do differently if we encounter another similar project would be to have more face to face meetings when dealing with the application and to start development on the application earlier on during the project in conjunction with our system design. This way we could limit the amount of alterations made to the design of the system further into the project.

**Team Meeting Minutes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Meeting Date: 12/3/15** | **Meeting Time:12PM** | | **Meeting Type:**  **Face-to-Face** |
| **Project Name: Employee Tracker** | | **Group #/Team Name: Team 6** | |

|  |  |
| --- | --- |
| **Meeting Facilitator: Jaehan Jeong** | **Meeting Minutes Recorder: Jaehan Jeong** |
| **Meeting Objective: Put together MS Access database Graphical User Interface as an application** | |

|  |  |  |
| --- | --- | --- |
| **Attendees** | **Absentee** | **Excused Absence (Y/N)** |
| Jaehan Jeong |  |  |
| Angelyn Arthur |  |  |
| Ives Wu |  |  |
| **Topics Discussed/Tasks Accomplished** | | | **Responsibly Team Member(s)** |
| Created most parts of the Access Application for final project. | | | Jaehan, Ives, Angelyn |
| Assigned tasks for more advanced features of the application. | | | Jaehan, Ives, Angelyn |

|  |  |  |  |
| --- | --- | --- | --- |
| **Decisions Made** | | | **Responsibly Team Member(s)** |
| Main Page will have some options grouped. Add, delete, modify etc will be together, rather than each having its own page | | | Everyone |
| Design decisions (Button size, window size, color, etc) | | | Everyone |
| **Action Item/Tasks Assigned** | **Assigned To** | **Due Date** |
| Revisions for previous phases | Jaehan | 12-10-15 |
| Splash Screen / User login | Ives Wu | 12-6-15 |
| Tidying up UI | Everyone | 12-14-15 |
| Close out report | Everyone | 12-14-15 |

|  |
| --- |
| **Meeting End Time: 2:00PM** |
| **Next Meeting Date and Time:TBD** |

**Project Team Members Names and Signature:**

|  |  |  |
| --- | --- | --- |
| **Name (print)** | **Signature** | **Date** |
| **Jaehan Jeong** | ***Jaehan Jeong*** | **12-3-15** |
| **Angelyn Arthur** | ***Angelyn Arthur*** | **12-3-15** |
| **Ives Wu** | ***Ives Wu*** | **12-3-15** |
|  |  |  |
|  |  |  |
|  |  |  |