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| Enterprise Tracking Application |
| Software Project Management Plan |
| Prepared For: Perspecta  Location: Austin, TX |
| Date: 8/25/2020  Revised: 11/9/2020 |
| Angeleen Abesamis  Remnin Ferrer  James Fritz  Yeremy Joseph  Eric Leon |

# Revision History

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# Abstract

This document serves as the project plan for the Enterprise Tracking Application (ETA) that is being developed by the University of Texas at Dallas (UTD) project team for Perspecta Inc. We will use this document to describe how the project will be managed and completed.

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# 1. Introduction

The project team from UTD has been tasked with developing the ETA featuring the following items for Perspecta Inc.

* User interface for tracking application integrations.
* Backend data store for storing data related to tracking of application integrations.
* Data accessors for backend data store.
* Solution packaging and testing.
* Solution documentation.

### 1.1 Purpose

The purpose of this Software Project Management Plan (PMP) is to gather all information necessary to control the project. It describes the approach to the development of the software and is the top-level plan generated and used by the project team lead to direct the development effort. This document is intended for the UTD project team, who will use the information as guidelines to progress through the project. This document is also for the UTD faculty as it fulfills one of the requirements of the project.

### 1.2 Scope

The PMP describes the plan to be used by the ETA project team, including testing and demonstration of the product. The details of the individual iterations will be described in the subsequent sections of this document.

### 1.3 Project Overview

The project will include three main components which will serve as an enabler to the Perspecta Enterprise Integration capability. The first component is a backend data store that will be used to store relevant data for the application which will be provided by the customer. The second component will be a browser-based user interface that will be used to list, create, update, delete, and render the content stored in the backend data store. The third component will be a set of RESTful services which will integrate the user interface to the backend data store. The technologies that the team will be utilizing to implement the project are as follows:

* Backend
  + Java
  + Microsoft SQL Server database management system
* Middleware
  + Swagger UI
* Frontend
  + Angular
  + HTML/CSS
* Frameworks
  + Java
  + Angular
  + Spring Boot

### 1.4 Project Plan Overview

The project plan is structured as follows:

* Section 1, Introduction. The introduction of the Software Development Plan provides an overview of the entire document. It includes the plan overview, purpose, scope, and project overview of this Software Development Plan.
* Section 2, Project Organization. The Project Organization describes the way in which the development team is organized. It also contains information about the team individuals and their respective roles.
* Section 3, Lifecycle Model. The Lifecycle Model contains a brief overview of the software development lifecycle that is being used for the project and the rationale behind the selected model.
* Section 4, Risk Analysis. The Risk Analysis section contains some information about the possible project risks, the likelihood of these risks becoming issues, and the possible mitigation strategies that may be employed.
* Section 5, Hardware and Software Resource Requirements. The Hardware and Software Resource Requirements section outlines the necessary hardware and software that will be required to carry out the project development.
* Section 6, Deliverables and Schedule. The Deliverables and Schedule section describes and rationalizes the activities, dependencies between activities, and estimated time required to reach each milestone, and the allocation of people to activities.
* Section 7, Monitoring, Reporting, and Controlling Mechanisms. The Monitoring, Reporting, and Controlling Mechanisms section describes and provides the rationale for the management reports that should be produced, when they should be produced, and the methods of project monitoring and control mechanisms used.
* Section 8, Professional Standards. The Professional Standards section describes the expected behavior of the team members related to scholastic dishonesty, the meeting schedule, and the quality expectations for tasks, deliverables, etc.

# 2. Project Organization

### 2.1 Organizational Structure

Project Team Lead

The project team lead is responsible for tracking the team’s progress in accordance with the project schedule. The project team lead is also responsible for submitting all of the necessary deliverables to the teaching assistant by the required deadlines. The project team lead’s main goal is to make sure that the project is successful. They also communicate with the project sponsor to assure that the project goals are being met.

Software Architect

The software architects are responsible for creating the architecture for a system that will best suit the project needs. The architecture that they choose should be able to also meet project sponsor requirements and meet the project goals.

Software Developer

The software developers are responsible for developing the functionality we have stated in our requirements as well as integrate the corresponding technology to ensure that the application can carry out end-to-end tasks.

Database Developer

The database developers are responsible for implementing the database functionality that will be necessary to carry out the end-to-end tasks of the application.

Software Tester

The software testers are responsible for testing the application to ensure that it follows the quality that we promise to deliver to our project sponsor as well as carry out the functionality that we stated in our requirements.

### 2.2 Project Team

|  |  |  |
| --- | --- | --- |
| Name | Title | Email |
| Angeleen Abesamis | Software Engineer | afa150030@utdallas.edu |
| Remnin Ferrer | Software Engineer | rxf170530@utdallas.edu |
| James Fritz | Software Engineer | jkf150030@utdallas.edu |
| Yeremy Joseph | Software Engineer | cwj180001@utdallas.edu |
| Eric Leon | Software Engineer | eal180003@utdallas.edu |

Table 2-1. Project team members

### 2.3 Team Roles

Given the nature of the project, all team members will play some part of each role in the organizational structure apart from the project team lead. These team roles are indicated in the following table per team member.

|  |  |
| --- | --- |
| Role | Team Member Names |
| Project Team Lead | James Fritz |
| Software Architect | Angeleen Abesamis, Remnin Ferrer, James Fritz,  Yeremy Joseph, Eric Leon |
| Software Developer | Angeleen Abesamis, Remnin Ferrer, James Fritz,  Yeremy Joseph, Eric Leon |
| Database Developer | Angeleen Abesamis, Remnin Ferrer, James Fritz,  Yeremy Joseph, Eric Leon |
| Software Tester | Angeleen Abesamis, Remnin Ferrer, James Fritz,  Yeremy Joseph, Eric Leon |

Table 2-2. Project team member roles

# 3. Lifecycle Model

### 3.1 Lifecycle Model Description

For this project we will be using a revised waterfall model as required by the university.

### 3.2 Lifecycle Model Rationale

The reason for using a revised waterfall model has to do with both the nature of the projects and the amount of time available to see their completion. In this case, the revised waterfall model is a traditional iterative model, but it has been revised to allow for edits to be made to prior deliverables as subsequent iterations are completed.

# 4. Risk Analysis

### 4.1 Project Risks

The possible project risks, likelihood of these risks arising, and proposed risk reduction strategies can be found in the following table.

|  |  |  |
| --- | --- | --- |
| Probability (L/M/H) | Risk Description and Impact | Mitigation Strategy and/or Contingency Plan |
| M | Hardware Accessibility: A team member that does not have access to a Windows PC or their machine becomes damaged | Borrow a laptop from UTD following their “Laptop Use & Checkout Policy” |
| L | Team member scheduling Conflicts: a member of the team is unable to attend a meeting | Sessions will be recorded, and any notes will be shared |
| L | Team lead scheduling conflicts: The team lead is unable to attend a meeting | The team lead will share the agenda to follow, if any, and designate an interim team lead |
| M | A team member becomes unavailable due to an emergency or medical issue which may impact the development phase | Sessions will be recorded, and any notes will be shared. Seek advice from course instructors |
| M | Sponsor scheduling conflicts: The sponsor is unable to attend a sponsor meeting | Attempt to reschedule the meeting prior to the next scheduled sponsor meeting |
| H | Complexity of the technology: Learning curve for new development technologies is steeper than expected | Designate additional resources to the most complex languages |
| L | Unrealistic delivery estimates: delivery targets are not being met | Re-estimate, put in additional hours, seek advice from course instructors |
| M | Project sponsor is unavailable to provide time-sensitive input | Seek advice from course instructors |
| M | Sponsor insists on new requirements | Estimate the effort and decline if necessary |
| L | Lack of effective communication or participation of a team member | Take disciplinary action as stated in section 8.1 |
| M | Design fails to address major requirements | Reassign additional team members to the project design |
| L | The product fails to meet expectations | Switch to bi-weekly meetings and additional hours until the project is back on track |
| M | The testing phase uncovers more errors/bugs than expected | Reassign additional team members where necessary |
| L | Team members do not work together efficiently | Reassign tasks and roles |

Table 4-1. Project risks

# 5. Hardware and Software Resource Requirements

### 5.1 Required Hardware

* Windows PC
* Wireless Connection

### 5.2 Required Software

* Windows Operating System
* Eclipse IDE
* Java Development Kit
* Microsoft SQL – Developer Edition
* Spring Boot Framework
* JavaScript Framework

# 6. Deliverables and Schedule

### 6.1 Project Deliverables

The following project deliverables are to be delivered to Perspecta, Inc.

* Project Plan
* Requirements
* Logical Architecture Diagram
* Physical Architecture Diagram
* Test Plan
* Final Report and Demonstration

The following project deliverables are to be delivered to the teaching assistant.

* Project management Plan
* Requirements Documentation
* Architecture Documentation
* Detailed Design Documentation
* Testing Plan
* Final Project Report
* Final Project Demonstration

### 6.2 Project Schedule

The project team will meet with Dave Gibson from Perspecta (team sponsor) on Fridays from 3 p.m. to 5 p.m. through November 20th. Meetings with the team sponsor will take place on Cisco WebEx.

The following schedule is set to meet the delivery requirement:

1. Sponsor meeting to identify business problem 9/4
2. Project Management Plan 9/4
3. Sponsor meeting to identify requirements 9/11
4. Sponsor meeting to finalize requirements 9/18
5. Requirements Document 9/18
6. Sponsor meeting to identify design 9/25
7. Sponsor meeting to finalize design 10/2
8. Logical/Physical Architecture Diagram 10/2
9. Architecture Document 10/2
10. Sponsor meeting to review prototype design 10/9
11. Sponsor meeting to finalize prototype design 10/16
12. Detailed Design Document 10/16
13. Sponsor meeting to review implementation progress 10/23
14. Sponsor meeting to finalize implementation and review testing plan 10/30
15. Sponsor meeting to finalize testing plan 11/6
16. Testing Plan 11/6
17. Sponsor meeting to review feedback 11/13
18. Sponsor meeting to review revisions 11/20
19. Final Project Report and Demo 11/25

# 7. Monitoring, Reporting, and Controlling

### 7.1 Management Reports

Performance Reports

Performance reports contain information about the project’s current state. This includes status and progress reports to keep track of on-going and finished tasks, as well as estimating progress in the future. Approved changes and status of risks and issues shall also be covered in the report. The Performance Reporting task will aid in tracking the current status of the project and keeping stakeholders and project members up to date.

### 7.2 Project Monitoring and Control Mechanisms

Monitoring and Controlling Project Work

The team shall review and track current progress in the project and compare it to planned performance objectives to confirm that they are met. This comparison is included in the performance reports and will take place all throughout the project. This process will help both team members and stakeholders understand the project’s current state, as well as actions taken and projected dates for completion of tasks.

Monitoring Risk

The team will monitor the set of risks and agreed-upon risk response plans for some risks require an immediate response and to avoid a risk from becoming an issue. Excel will be used to manage and control risks. These responses can be modified as needed. The team leader will periodically work with the project members to identify and analyze new risks as these arise over time. This process shall mitigate the effects of risks, if not prevent them from occurring.

Monitoring Communications

The team shall ensure that the information needed from the client regarding project is concise and that these goals are met in the project. A meeting minutes for communications between the client and the team members shall be used, and a separate log that contains key information discussed in the meeting shall be used when necessary. This process will aid in each member’s understanding of information provided by the client and will lower the risk of any misunderstandings or mistakes when transcribing information into requirements.

Integrated Change Control

The Integrated Change Control process manages, and documents change requests for project deliverables and the project management plan. The process analyzes and determines if change requests are to be approved or rejected, then examines if changes to the project baseline is required upon implementing the change request. Having Integrated Change Control will drastically reduce possible risks associated with changes in the project, as well as provide some insight through analyzing the effects of implementing changes.

Scope Control

The Scope Control process monitors the project scope and manages any changes made to its baseline. This ensures that the scope baseline remains consistent all throughout the project, and that any changes to the baseline is implemented and documented.

Schedule Control

The Schedule Control process monitors the status of the project activities to update the progress of the project and modifies the schedule baseline if needed for the success of the project.

Quality Control

The Quality Control is the process of validating the information and implementing the appropriate quality steps to satisfy the project quality requirements. The team leader will evaluate and verify that the submitted information or report is accurate before including it in the overall project. The project team must determine the quality of each project deliverable.

# 8. Professional Standards

### 8.1 Member Expectations

Weekly Sponsor Meetings

* All members of the project team shall meet and participate weekly with the project sponsor.
* Weekly sponsor meetings will take place on Fridays at 3:00 PM and are scheduled for up to two hours in duration.
* Weekly sponsor meetings will utilize Cisco WebEx as the meeting platform.
* All members of the project team are expected to participate during the weekly sponsor meetings.
* All members are always expected to maintain professionalism during the sponsor meetings. This expectation extends to appropriate etiquette relating to the online meeting environment (e.g. keep mics muted when not talking).
* Team members shall notify the project team lead in advance with their reasoning if they will be unable to attend a weekly sponsor meeting. If the project team lead is unable to attend a weekly sponsor meeting, they will appoint a coordinator to take their place for the meeting and provide advance notice to the rest of the team with their reasoning.

Weekly Team Meetings

* All members of the project team shall meet and participate weekly to review the output from the weekly project sponsor meeting and determine the tasks to be completed for the week.
* Weekly team meetings will take place on Saturdays at 12:00 PM and are scheduled for up to two hours in duration.
* Weekly team meetings will utilize Cisco WebEx as the meeting platform.
* All members of the project team are expected to participate during the weekly team meeting.
* All members are always expected to maintain acceptable behavior during the weekly team meetings.
* Team members shall notify the project team lead in advance with their reasoning if they will be unable to attend a weekly team meeting. If the project team lead is unable to hold a weekly team meeting, they will appoint a coordinator to take their place for the meeting and provide advance notice to the rest of the team with their reasoning.
* Weekly team meetings may only be cancelled if suggested by the project team lead and agreed to by all team members. Cancellation by agreement of all team members is only possible if all members have either a) completed their tasks ahead of schedule or b) have all acknowledged that they are fully aware of their current expectations.

Unacceptable Behavior

Examples of unacceptable behavior include, but are not limited to:

* Not delivering on time.
* Delivering poor quality work.
* Missing team meetings.
* Being uncommunicative.
* Being unprepared for team meetings.
* Being disrespectful or rude.

Corrective Measures

* On the first occurrence of unacceptable behavior, determine the circumstances involved, resolve the problem, and document the event in the meeting minutes.
* On a second occurrence, notify the instructor of the problem. A meeting will be set up to evaluate the situation and resolve the problem.
* On a third occurrence, again notify the instructor of the problem. A meeting will be set up to evaluate the situation and resolve the problem. At this point, the team will have the \*option\* of removing the team member. If removed, then the team member receives a pro-rated grade based on the number of weeks they have participated in the group.
* Valid reasons that must be considered include those listed for obtaining an incomplete standing in a course (illness, death in the family, travel for business or academic reasons, etc.).

# 9. References

*ISO/IEC/IEEE International Standard - Systems and software engineering - Life cycle processes - Project management*, in ISO/IEC/IEEE 16326:2019(E) , vol., no., pp.1-42, 13 Dec. 2019, doi: 10.1109/IEEESTD.2019.8932690. [Online]. Available: https://ieeexplore.ieee.org/servlet/opac?punumber=8932688

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