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INFO 637 - Software Engineering Process II

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**INFO 637 Assignment 1 - Launch and Strategy**

**Part 1: Launch**

**Launch Step 1: Course Overview**

The purpose of the course is to take the principles of the personal software process(PSP) from INFO 636 and apply them in a group environment. The three students of the course will be using the Team Software Process (TSP) to develop a small software application.

**Launch Step 2: Student Information**

Scott McHenry - a computer engineer working as a civilian for the U.S. Navy. He works for the PMW 240 Sea Warrior Program Office, which specializes in bringing business IT systems to Navy Sailors. He finds it to be a very rewarding job and it has help him gain valuable experience as an engineer.

Ross Silberquit - a MSSE student about half-way through his degree. He works full time as a computer programmer, currently working in the big data space. He’s currently working with two interconnected development teams. He’s excited for this course to see what he can bring back to those groups.

Nai Xie - a part-time student major in Software Engineering. He’s working full time as a system analyst / junior architect in a global health service company. He doesn’t do development on a daily basis anymore, but does have some experience in Java and C#. He can code if needed.

**Launch Step 3: Product Objectives**

What Can I Watch Tonight is an application that presents all of your available digital streaming video content in one place. According to a 2016 Consumer Reports survey, 47% of US households are using streaming services to access digital video content 1. Today in 2017, consumers are spoiled for choice when it comes to choosing a digital streaming provider, in both subscription based and free streaming options. Having to scour through all of your options on a Friday night to find what you want to watch is not easy, even for the the most decisive person.

1. **Streaming service selection and filtering functions**
   1. Prompt the user with all streaming service options
      1. Free and Paid subscription based options should be presented in different subsections
         1. Allow the user to select all free streaming service options
2. **Searching functions**
   1. Allow the user to search by the following criteria and present results as well as what streaming service the show is available on
      1. Title
      2. Actor/Actress
      3. Director
      4. Genre
      5. Episode/Clip/Segment
   2. Allow the user to search for all episodes of a show; and by season
   3. Allow the user to save specific search results to a ‘Watchlist’
3. **Analyzer functions**
   1. Allow user to select genre, actor, and director favorites and present suggestions based on the criteria
   2. Display a ‘Top Choice for You’ weekly
   3. Notify the user when new content is available to stream based on their preferences
4. **General specifications**
   1. The ‘What Can I Watch Tonight’ application will be web based and will work on all modern web browsers.
   2. The ‘What Can I Watch Tonight’ documentation must describe operation as well as provide video tutorials on basic functionality.

**Launch Step 4: Team Assignments**

|  |  |  |
| --- | --- | --- |
| Role Names | Key Responsibilities | Team Members |
| Team Leader | * Similar to a PM role * Build and maintain an effective team * Team meeting facilitator * Communicate team’s progress to Instructor * Established and maintain the project notebook | Scott McHenry |
| Development Manager | * Similar to Software Architect * Leader to create the software * Utilize the team member’s skills | Ross Silberquit |
| Planning Manager | * Produce and manage the plan for the project * Report team status weekly | Nai Xie |
| Quality and Progress Manager | * Ensure TSP process is being followed * Verify the quality of the product | Scott McHenry  Nai Xie |
| Support Manager | * Configuration management * Risk Management | Ross Silberquit |
| Development Engineer | * Produce own code and documents * Record time and update TSP forms | Scott McHenry  Ross Silberquit  Nai Xie |

**Launch Step 5: Team Goals**

1. **Overall Team Goals**

Work together well as a team. (1) Support each team member in an environment that provides quality feedback and encouragement for individual task completion. This goal will be measured in peer feedback forms provided at the end of the term. Content will be recorded from weekly team meetings and code reviews. (2) Learn an aspect of software product development each team member is unfamiliar with. This goal will be measured with individual lessons learned reviews at the end of the term.

1. **Assignment Goals**

The team goals as they pertain to the assignment are to (1) submit all assignments on time. This means that all assignments are completed ahead of the submission deadline, with ample time review and quality check each aspect of the deliverable. This goal will be measured by the submission time, as well general group consensus that the deliverable was reviewed to satisfaction. (2) to provide work with enough substance and quality to receive at least a 90% grade marking. Assignment feedback will be worked into the subsequent assignment. This goal will be measured directly with the feedback received from the professor with the deliverable grade.

1. **Product Goals**

The team goals as they pertain to the product are to (1) deliver a product that satisfies all the product objections listed above. This goal will be measured by comparing each deliverable and the final product with the original specification to ensure that all requirements were satisfied. (2) construct a user friendly and intuitive web user interface that allows the user to utilize all of the application’s functionality easily. This goal will be measured by feedback received from independent user testing sessions.

These goals expand upon the standard TSP team goals to include the element of learning. Each assignment should be a learning opportunity to better improve both individually and as a team, which should be evident in the subsequent deliverable.

**Launch Step 6: Team Meetings**

|  |  |  |  |
| --- | --- | --- | --- |
| Time | Frequency | Channel | Agenda |
| Wednesday 7pm to 8pm | Weekly | Google Hangouts Video Chat | * Initial planning for the week * Understand the deliverables * Agree on tasks for each team member * Open Discussion |
| Saturday  2pm to 3pm | Weekly | Google Hangouts Video Chat | * Review team progress * Finalize the weekly deliverables * Open Discussion |

Beside the regular team meetings above, ad hoc meeting may be scheduled as needed. Also email and Google Hangouts group chat will be used regularly to communicate progress and discuss project issues.

**Launch Step 7: The First Team Meeting**

The first team meeting was held through Google Hangouts Video Chat at 7pm on 4/19. The meeting minutes as below:

* Team member introduction
* Discussed project ideas and agreed on the project selection
* Discussed and agreed on project goals
* Discussed and agreed on team member roles
* Discussed and agreed on weekly meeting schedule and agenda

**Launch Step 8: Data Requirements**

The planning manager will review the data requirement with the team in the Wednesday team meeting to ensure everyone understands what data is needed for the assignment. Team member will provide the data by Saturday, and the planning manager will generate the weekly status report. The quality and progress manager will review the report before submission.

**Part 2: Strategy**

**Strategy Step 1: Strategy Overview**

Due to the limited time restrictions of one term, this product will developed within one TSP cycle. This means that the strategy will focus on getting a minimum-function working subset of the product, however emphasis will also be put producing the highest quality of that subset.

**Strategy Step 2: Establish Strategy Criteria**

1. The cycle - 1 product provides a minimum-function working subset of the final product.
   1. In the coming weeks, the product objectives stated in the product launch script will be finalized into product requirements. This will be used as criteria for project completion.
2. The cycle - 1 product provides a base that can be easily enhanced.
   1. The product must be created in a way that easily allows changes as well as additional enhancements to be added in.
3. The cycle products are all of high quality and can be easily tested.
   1. As described in detail below, this product will be developed with Test Driven Development (TDD). Additionally, all products components will be reviewed by 2 different team members individually for non-biased compliance.
4. The product design has a modular structure that permits the team members to work independently.
   1. The product will be designed in small features that each represent individual functionality that a user can use the product for. Groups of features will be independent of one another to allow a module design.

**Strategy Step 3: Produce the Conceptual Design**

The ‘What Can I Watch Tonight’ application solves a frustration introduced from the entertainment and internet industries. As the advances in internet capabilities allow for entertainment companies to reach customers in new and easier ways, consumers are continuously bombarded with more options for digital media.

**Strategy Step 4: Select the Development Strategy**

1. Development Strategy
   1. The overall development strategy will be an iterative approach. Each cycle will deliver product features and enhancements beyond the initial version. Since we will only be completing one cycle during the term, an alternative would be use a more traditional waterfall method, however this does not support the overall goal of continuous improvement we would like to follow.
   2. Within our iterative development strategy, the development will be completed using Test Driven Development (TDD) approach. This approach to development starts with writing test scripts for individual requirements, and then writing the minimum amount of code to satisfy the test. This approach was chosen since directly supports two of the general TSP goals. First, it ensures high quality code by ensuring that it meets the requirements and will not introduce bugs before it is deployed. Additionally, it creates an application that can easily be enhanced, since each requirement is added individually as small modules.
2. Technology Selection

The technology chosen for this application is node js. This selection was made after a Proof of Concept (POC) was completed using an open source Application Program Interface (API): Guidebox that will be back end search algorithm for our application. While the API supports different languages, Node js is not only the most modern, but it supports both aspects of our application: Restful API calls to get data, and development of user friendly web interfaces.

1. Development Cycles

Given the limited time of the term, we will only be completing one development cycle. Within that development cycle, the units of work will be divided into two phase. The first will be data. All of the functions which call the Guidebox API to gain details about the streaming content available will be completed in the data phase. The second phase will be UI. All of the data gathered in the data phase will be transformed and rendered into an web based UI.

1. Quality Control

In addition to TDD, code reviews will be conducted regularly when individual requirements are added to the product. Github will be used for code source control, which supports this quality control initiative.

**Strategy Step 5: Produce the Preliminary Estimate**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reference** | **Functions** | **Cycle (1) LOC** | **Cycle (1) Hours** |
| **0** | **System Control and Overhead** | **150** | **10** |
| **1** | **Data Phase** | **230** | **17** |
| **1.X** | **Data Phase Test Overhead** | **230** | **5** |
| 1.1 | Get shows based on criteria (title, actors, genre, etc) | 25 | 2 |
| 1.2 | Get movies based on criteria (title, actors, genre, etc) | 25 | 2 |
| 1.3 | Add filtering for subscriptions (free, paid, etc) | 25 | 2 |
| 1.4 | Get movie or show details by ID | 5 | 1 |
| 1.5 | Create user watch list (add, delete) | 50 | 5 |
| 1.6 | Create suggestion algorithm | 100 | 5 |
| **2** | **User Interface Phase** | **260** | **10** |
| 2.1 | Create search form | 25 | 1 |
| 2.2 | Format search criteria | 10 | 1 |
| 2.3 | Format and display search results | 25 | 2 |
| 2.4 | Create ‘Watchlist’ page | 50 | 1 |
| 2.5 | Format and display ‘Watchlist’ data | 50 | 2 |
| 2.6 | Create suggestion page | 50 | 1 |
| 2.7 | Format and display suggestion data | 50 | 2 |
| **Totals** |  | **870** | **42** |

**Strategy Step 6: Assess Risks**

See the “IRTL” tab in the TSPi Workbook

**Strategy Step 7: Document the Strategy**

To document our adherence to our development strategy, we will use a combination of the TSPi workbook and a weekly report. The workbook will primarily contain program data documented during development for the purpose of measuring development progress and software quality. The purpose of the report is to provide a description of weekly activities and provide context to the metrics documented in the TSPi workbook. The Team Leader will be primarily responsible for maintaining and updating the TSPi workbook with assistance from the Planning Manager, while the Planning Manager will be responsible for updating the weekly report with assistance from the Team Leader.

**Strategy Step 8: Produce the Configuration Management Plan**

In order to perform proper configuration management and track updates to our source code and documentation, we will use a combination of the GitHub and Google Drive services. GitHub is a code repository service that is primarily using as a version control tool for managing updates to software code during a software development effort, and we will use it for this purpose as well. However, we can also use it to keep track of finalized documentation. On the other hand, we will use Google Drive to store draft documents that we are editing during any given week of the development effort. Once we have completed updating documentation for a given week, we will upload those documents to GitHub in order to keep an edit history of all documents and source code created during development, and to revert to an earlier version of both if necessary.