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CSE 566 Software Project Process and Quality Management

Assignment 2 – Agile Project Planning

How to Create the Schedule

1. To start off, I needed to access the Jira Software.

    a. So, for this I created a new account using my ASU email address: kkanchi@asu.edu

    b. Then, I verified the creation of the account from my email address.

    c. I then logged into the account and created a new project – My Kanban Project.

2. Now, to create a timeline, I need to enable a few required features.

    a. In order to that, I opened the project settings.

    b. I then navigated to the Features section within the project settings.

    c. I then toggled the following features: Timeline, Backlog and Sprints to enable them.

3. Once the required features are enabled, open the Timeline page from the left navigation menu.

    a. In the timeline view, there is a button called "Create Epic".

    b. By clicking on that button, I have created all the 4 Epic specified in the project description.

    c. Then by clicking on the "+" button that toggles on hovering over an Epic, I created child issues under each epic where child issue corresponds to each story mentioned in the project description.

4. Now, go into the backlog page by clicking on the Backlog option from the left navigation menu.

    a. In this page, you can see all the above added user stories under the Backlog section.

    b. Now, in order to create a timeline view, you need to create sprints.

    c. To the right of Backlog section, there is a button called "Create Sprint".

    d. By clicking on the "Create Sprint" button I created 5 sprints as per initial planning.

    e. I then moved each user story from the backlog section into one of the 5 sprints as I saw fit.

f. Since, I also had to include atleast 3 additional activities related to the necessary technical infrastructure and tools, I created a few activities and placed them into one of the sprints.

5. Once, I have sorted all my tasks into the sprints, the only thing left for me to do is for me to add dates.

   a. Depending on the tasks, I had in each sprint, I decided on the number of weeks required for each sprint to be completed by a total team of 4 developers.

   b. Then, I then decided on the start and end dates for each user story or task under the sprint.

6. Once you finish all the above 5 steps, you can now go to the Timeline page.

   a. Now, you can see a schedule bar that is displayed for each sprint.

   b. But to display the schedule bars for the user stories or tasks under each epic

      i. Open Project Settings.

      ii. Open the Board Section.

      iii. Open the Timeline Sub-Section.

      iv. Now, in this page you can see that there is an option for "Child Level Issue Scheduling".

      v. Toggle this option.

      vi. Once this option is toggled, it will show two options : "Schedule child issues by sprint" or "Schedule child issues by dates".

      vii. For this assignment, I have selected the "Schedule child issues by dates" option.

   c. Now, the final thing that is left is that of adding dependencies between user stories or tasks.

      i. By hovering over a schedule bar, you can see a link icon that pops up.

      ii. You can select that link icon and then drag it to the schedule bar (task) that you want to link to. By doing this a dependency is now formed between the two tasks.

Therefore, this is how I have created my schedule.

Activities related to the necessary technical infrastructure and tools.

1. Technical Infrastructure Activity: Setting Up Development Environment

   a. Establish and configure a scalable cloud infrastructure to host the e-commerce platform, ensuring it can handle varying loads efficiently.

b. This involves selecting the right cloud service provider (CSP), setting up servers, databases, and storage solutions that can scale up or down based on traffic demands.

c. It also includes implementing caching strategies and Content Delivery Networks (CDNs) to improve website performance globally.

2. Technical Infrastructure Activity: Creating a Database schema for the application.

a. Design and implement a scalable database schema capable of handling high volumes of transactions and data storage needs for user accounts, product information, transactions, shopping cart and recommendations.

b. This includes choosing the appropriate database type (e.g., SQL for structured data, NoSQL for unstructured data), indexing critical columns for faster search, and implementing data caching strategies to reduce database load and speed up response times.

3. Technical Infrastructure Activity: Integrate server configurations, and a version control system.

a. Use Git

b. Host on Atlassian Bitbucket for collaboration.

4. Technical Infrastructure Activity: Learning about Elastic Search Engine

a. This engine delivers advanced search capabilities, improving efficiency and accelerating resolution with search and streamlined workflows.

5. Technical Infrastructure Activity: Integrating the ElasticSearch Engine into the dev environment.

6. Technical Infrastructure Activity: Implement (CI/CD) pipelines.

a. Establish a CI/CD pipeline using Jenkins to streamline development, testing, and deployment processes.

b. This involves setting up automated testing frameworks and configuring deployment strategies to minimize downtime and ensure high availability of the platform.

7. Technical Infrastructure Activity: Learning about Recombee

a. Recombee is a Artificial Intelligence Powered Recommender as a Service.

b. The Recombee recommendation engine can be applied to any domain that has a catalog of items and is interacted by many users.

    c. Applicable to web and mobile apps, Recombee improves user experience by showing the most relevant content for individual users.

8. Technical Infrastructure Activity: Environment Setup for iOS App Development

9. Technical Infrastructure Activity: Environment Setup for Android App Development

To include some of the above-mentioned other activities I have created a new Epic called "Project Kick-Off and Initial Setup" within which I have placed 4 of the 7 mentioned activities. The remaining 3 activities have been placed under the initially specified Epic 2 – Product Search and Recommendation.

Activity Name	Part of the Following Epic
1. Setting Up Development Environment	Project Kick-Off and Initial Setup
2. Creating a Database schema for the application.	
3. Integrate server configurations & version control system	
4. Implement (CI/CD) pipelines	
5. Learning about Elastic Search Engine	Product Search and Recommendation
6. Integrating the ElasticSearch Engine in the development environment	
7. Learning about Recombee	
8. Technical Infrastructure Activity: Environment Setup for iOS App Development.	Mobile App Integration
9. Technical Infrastructure Activity: Environment Setup for Android App Development	

Dependencies Included in the Timeline

1. As a user, I want to be able to register for a new account using my email and password.

    a. **Blocks** the following user story.

    b. As a user, I want to receive a confirmation email upon successful registration to verify my account.

    c. **Reason**: The reason for this is because only when the code for user registration is implemented can we implement the code to send a confirmation email to the user in order for the user to verify his account.

2. As a user, I want to be able to register for a new account using my email and password.

    a. **Blocks** the following user story.

    b. As a user, I want to reset my password if I forget it.

    c. **Reason**: This is because only when a user is created, can we implement the code to reset.

3. As a user, I want to be able to register for a new account using my email and password.

    a. **Blocks** the following user story.

    b. As a user, I want to link my social media accounts for easier login.

    c. **Reason**: The reason for this is that even if the developers integrate social media APIs to allow users to register themselves into the platform, the same registration logic can be used to extract the email address and create a new user.

4. As a user, I want to be able to register for a new account using my email and password.

    a. **Blocks** the following user story.

    b. As a user, I want to see personalized product recommendations based on my browsing and purchase history.

    c. **Reason**: Personalized recommendations are user specific.

5. As a user, I want to receive a confirmation email upon successful registration to verify my account.

    a. **Blocks** the following user story.

    b. As a user, I want to link my social media accounts for easier login.

    c. **Reason**: Even when the user registers through social media, he/she is still required to verify.

6. As a user, I want to receive a confirmation email upon successful registration to verify my account.

    a. **Blocks** the following user story.

b. As a user, I want to update my personal information (e.g., name, email, profile picture) in my account settings.

c. **Reason**: If the user changes his email address at some point, he/she still needs to verify it.

7. Technical Infrastructure Activity: Learning about Elastic Search Engine.

   a. **Blocks** the following task.

   b. Technical Infrastructure Activity: Integrating the ElasticSearch Engine in the development environment.

   c. **Reason**: Without proper understanding of the tool, the tool cannot be integrated.

8. Technical Infrastructure Activity: Integrating the ElasticSearch Engine in the development environment.

   a. **Blocks** the following user story.

   b. As a user, I want to search for products by keyword, category, and price range.

   c. **Reason**: Only when the tool is integrated can we use it's full potential to implement the searching functionality the best way possible.

9. As a user, I want to search for products by keyword, category, and price range.

   a. **Blocks** the following user story.

   b. As a user, I want to filter search results by various criteria (e.g., customer ratings, brand, availability).

   c. **Reason**: Only when the code to search is written, can we implement the logic to filter the search results based on the user selection.

10. As a user, I want to search for products by keyword, category, and price range.

    a. **Blocks** the following user story.

    b. As a user, I want to see personalized product recommendations based on my browsing and purchase history.

    c. **Reason**: This is because personalized recommendations depend on the user searches. So, only when we implement the searching logic can we capture the user searches in order to provide the best personalized recommendations.

11. Technical Infrastructure Activity: Learning about Recombee.

a. **Blocks** the following user story.

b. As a user, I want to see personalized product recommendations based on my browsing and purchase history.

c. **Reason**: Since, the team has decided to use the Recombee tool to implement a robust recommendation engine, the developers are first required to well versed with the tool.

12. As a user, I want to add products to my shopping cart from the product detail page.

a. **Blocks** the following user story.

b. As a user, I want to view and edit the contents of my shopping cart before checking out.

c. **Reason**: This is because for the items to be shown in the shopping cart page, first of all items need to be added to the shopping cart.

13. As a user, I want to view and edit the contents of my shopping cart before checking out.

a. **Blocks** the following user story.

b. As a user, I want to apply discount codes and see the adjusted total price.

c. **Reason**: Without any items in the shopping cart, you cannot add any discount codes.

14. As a user, I want to select different shipping and payment options during checkout.

a. **Blocks** the following user story.

b. As a user, I want to receive an order confirmation email with details about my purchase.

c. **Reason**: Since, the confirmation email requires to contain the payment details and the shipping address, the above-mentioned user story is required to be completed first.

Sprint Schedule

Now, coming to the sprints, I have planned 5 sprints in total to fulfill all the project requirements.

Sprint Name	Sprint Duration	Sprint Start Date	Sprint End Date
1. KAN Sprint 1	4 weeks	1st January 2024	26th January 2024
2. KAN Sprint 2	2 weeks	29th January 2024	9th February 2024
3. KAN Sprint 3	3 weeks	12th February 2024	1st March 2024
4. KAN Sprint 4	3 weeks	4th March 2024	22nd March 2024
5. KAN Sprint 5	6 weeks	25th March 2024	3rd May 2024

I have planned each sprint for a certain duration depending on the tasks present in that sprint.

Planned Sprints

In this section, I will specify in detail about each sprint and why it contains those specific tasks.

Also, as mentioned in the project description there are 4 developers in this project whom I have named:

Programmer-A, Programmer-B, Programmer-C and Programmer-D.

KAN Sprint 1

This is the first sprint. In this sprint there are 6 tasks. Those are as follows:

1. Technical Infrastructure Activity: Setting Up Development Environment

    a. Start Date: 1st January 2024

    b. Due Date: 5th January 2024

    c. Will be done by Programmer-A and Programmer-B.

    d. I have assigned only 5 business days to this task.

        i. This is because since we are setting up an existing application.

        ii. So, there should not be any unforeseen difficulties in finishing this task.

2. Technical Infrastructure Activity: Creating a Database schema for the application.

    a. Start Date: 1st January 2024

    b. Due Date: 12th January 2024

    c. Will be taken care by Programmer-C and Programmer-D.

    d. I have assigned 10 business days to this task.

        i. This is because we have to create a new database schema from scratch.

        ii. And we need to implement a way of handling high volumes of transactions.

3. Technical Infrastructure Activity: Integrate server configurations, and a version control system.

    a. Start Date: 8th January 2024

    b. Due Date: 12th January 2024

    c. Will be taken care by Programmer-A and Programmer-B.

    d. I have assigned 5 business days to this task.

4. As a user, I want to be able to register for a new account using my email and password.

    a. Start Date: 15th January 2024

    b. Due Date: 19th January 2024

    c. Will be taken care by Programmer-A and Programmer-B.

    d. I have assigned 5 business days to this task.

        i. This is because it is a medium sized task.

        ii. Where one programmer can look to setup a secure authentication system.

        iii. Another programmer can look to develop the UI and respective code for the task.

5. As a user, I want to receive a confirmation email upon successful registration to verify my account.

    a. Start Date: 22nd January 2024

    b. Due Date: 26th January 2024

    c. Will be taken care by Programmer-A and Programmer-B.

    d. I have assigned 5 business days to this task.

        i. This is because it is a medium sized task.

6. Technical Infrastructure Activity: Learning about Elastic Search Engine

    a. Start Date: 15th January 2024

    b. Due Date: 26th January 2024

    c. Will be taken care by Programmer-C and Programmer-D.

    d. I have assigned 10 business days to this task as it requires a lot of expertise and versatility.

KAN Sprint 2

This is the second sprint. In this sprint there are 5 tasks. Those are as follows:

1. As a user, I want to reset my password if I forget it.

    a. Start Date: 29th January 2024

    b. Due Date: 31st January 2024

    c. Will be taken care by Programmer-A.

2. As a user, I want to update my personal information (e.g., name, email, profile picture) in my account settings.

   a. Start Date: 1st February 2024

   b. Due Date: 2nd February 2024

   c. Will be taken care by Programmer-A.

3. As a user, I want to link my social media accounts for easier login.

   a. Start Date: 29th January 2024

   b. Due Date: 2nd February 2024

   c. Will be taken care by Programmer-B.

4. Technical Infrastructure Activity: Integrating the ElasticSearch Engine in the development environment.

   a. Start Date: 29th January 2024

   b. Due Date: 9th February 2024

   c. Will be taken care by Programmer-C and Programmer-D.

5. Technical Infrastructure Activity: Implement Continuous Integration/Continuous Deployment (CI/CD) pipelines.

   a. Start Date: 5th February 2024

   b. Due Date: 9th February 2024

   c. Will be taken care by Programmer-A and Programmer-B.

KAN Sprint 3

This is the third sprint. In this sprint there are 5 tasks. Those are as follows:

1. As a user, I want to search for products by keyword, category, and price range.

   a. Start Date: 12th February 2024

   b. Due Date: 23rd February 2024

   c. Will be taken care by Programmer-C and Programmer-D.

   d. I have assigned 10 business days to this task.

<ol style="list-style-type: lower-roman;">
This is because the developers handling this task have been working on learning and integrating the required tool for the last two sprints.
Therefore, in that duration the developers have become well versatile with the tool.
And since the only remaining part is the integration, it should not take more time.

2. As a user, I want to filter search results by various criteria (e.g., customer ratings, brand, availability).

   a. Start Date: 26th February 2024

   b. Due Date: 1st March 2024

   c. Will be taken care by Programmer-C and Programmer-D.

   d. I have assigned 5 business days to this task.

      i. This is because in this task the main thing is to filter the search results.

      ii. Which can be simplified by changing the parameters to the integrate tool.

      iii. The only major workable part is on the front-end side for which 5 days is sufficient.

3. As a user, I want to add products to my shopping cart from the product detail page.

   a. Start Date: 12th February 2024

   b. Due Date: 13th February 2024

   c. Will be taken care by Programmer-A and Programmer-B.

   d. I have assigned only 2 business days to this task as it is a very small task.

      i. Where one developer can work on the UI functionality

      ii. And the other developer can work on storing the data to the cart.

4. As a user, I want to view and edit the contents of my shopping cart before checking out.

   a. Start Date: 14th February 2024

   b. Due Date: 16th February 2024

   c. Will be taken care by Programmer-A and Programmer-B.

   d. I have assigned only 3 business days to this task as again this is a small task.

5. Technical Infrastructure Activity: Learning about Recombee: Artificial Intelligence Powered Recommender as a Service

   a. Start Date: 19th February 2024

   b. Due Date: 1st March 2024

  c. Will be taken care by Programmer-A and Programmer-B.

  d. I have assigned 10 business days to this task it takes time for developers to become familiar with the tool and become well versatile in implementing it as part of the application.

KAN Sprint 4

This is the fourth sprint. In this sprint there are 5 tasks. Those are as follows:

1. As a user, I want to see personalized product recommendations based on my browsing and purchase history.

  a. Start Date: 4th March 2024

  b. Due Date: 15th March 2024

  c. Will be taken care by Programmer-A and Programmer-B.

  d. I have assigned 10 business days to this task.

   i. This is because the implementation of the tool is a bit complicated.

   ii. The developers first need to implement the interaction portions of the tool.

   iii. Then depending on the interactions by the user, the developers have to build a robust recommendation engine that enhances the user experience.

2. As a user, I want to receive real-time notifications for new products, promotions, and price drops.

  a. Start Date: 18th March 2024

  b. Due Date: 22nd March 2024.

  c. Will be taken care by Programmer-A and Programmer-B.

  d. I have assigned 5 business days to this task as it is medium sized task.

3. As a user, I want to apply discount codes and see the adjusted total price.

  a. Start Date: 18th March 2024

  b. Due Date: 19th March 2024.

  c. Will be taken care by Programmer-C and Programmer-D.

  d. I have assigned 2 business days to this task as it is a small sized task.

4. As a user, I want to select different shipping and payment options during checkout.

  a. Start Date: 4th March 2024

b. Due Date: 15th March 2024

c. Will be taken care by Programmer-C and Programmer-D.

d. I have assigned 10 business days to this task.

     i. This is because one developer can be responsible for implementing a secure payment gateway whereas another developer can be responsible for implementing the UI.

5. As a user, I want to receive an order confirmation email with details about my purchase.

a. Start Date: 20th March 2024

b. Due Date: 22nd March 2024.

c. Will be taken care by Programmer-C and Programmer-D.

d. I have assigned 3 business days to this task as it is a small sized task.

KAN Sprint 5

This is the fifth and the last sprint. In this sprint there are 7 tasks. Those are as follows:

1. Technical Infrastructure Activity: Environment Setup for iOS App Development.

a. Start Date: 25th March 2024

b. Due Date: 29th March 2024.

c. Will be taken care by Programmer-A and Programmer-B.

2. Technical Infrastructure Activity: Environment Setup for Android App Development

a. Start Date: 25th March 2024

b. Due Date: 29th March 2024.

c. Will be taken care by Programmer-C and Programmer-D.

3. As a user, I want to log in to the mobile app using my existing account credentials.

a. Start Date: 1st April 2024

b. Due Date: 5th April 2024.

c. Will be taken care by Programmer-A and Programmer-B.

4. As a user, I want to use my device's camera to scan barcodes and search for products.

a. Start Date: 1st April 2024

b. Due Date: 12th April 2024.

c. Will be taken care by Programmer-C and Programmer-D.

d. I have assigned 10 business days to this task.

  i. This is because integrating the user's mobile camera into this application is complicated due to the number of permissions and setup that go with it.

  ii. And apart from this it depends on the functionality too.

5. As a user, I want to receive push notifications on my mobile device for order updates and promotions

a. Start Date: 8th April 2024

b. Due Date: 12th April 2024.

c. Will be taken care by Programmer-C and Programmer-D.

d. I have assigned 5 business days to this task as this is not a big task and can be completed in quick time when working in a pair.

6. As a user, I want to enjoy a responsive and user-friendly experience on the mobile app.

a. Start Date: 15th April 2024

b. Due Date: 19th April 2024.

c. Will be taken care by Programmer-A, Programmer-B, Programmer-C and Programmer-D.

d. I have assigned 5 business days to this task.

  i. This is because at this point of time the development is done.

  ii. So, all the developers can bear responsibility to different parts of the application and each developer can try to implement a few lines of code to achieve the goal of this task.

7. As a user, I want to download and install the mobile app from the App Store or Google Play.

a. Start Date: 22nd April 2024

b. Due Date: 26th April 2024.

c. Will be taken care by Programmer-A, Programmer-B, Programmer-C and Programmer-D.

  i. Programmer-A and Programmer-B are responsible for the App Store portion.

  ii. Programmer-C and Programmer-D are responsible for the Google Play portion.

d. I have assigned 5 business days to this task.

  i. This is because this is not a big task requiring huge amounts of time.

  ii. And also working in pairs will decrease the time.