

Software Engineering

BLG 411E

Members

Tanay Bensu Yurttürk - 150220766

İrem Çağın Yurttürk - 150220765

Bilgehan Altıntaş - 150180019

Seyfullah Sait Şahin - 150180097

Mustafa Deveci - 150190109

Course given by

Ahmet Cüneyd Tantuğ

November 10, 2023

CONTENTS

1	INTRODUCTION	2
1.1	Scope	2
1.2	Deliverables.....	4
1.3	Functional Requirements.....	5
1.4	Non-functional issues.....	6
2	PROJECT PLAN	7
3	ESTIMATES	8
4	RESOURCES	9
5	SCHEDULE	10
6	RISKS	12

1. INTRODUCTION

Collecting is not just a hobby; it's a passion that spans generations and brings like-minded individuals together. Whether people collect rare baseball cards, vintage stamps, or digital trading cards of their favorite video game characters, Collectify is designed to enhance the collector experience. This application brings the world of collecting to your mobile device, allowing you to buy, sell, trade, and manage your collections with ease. The development team is working to bring users a host of essential features. These include a user-friendly and visually appealing interface, ensuring that navigating the app is straightforward. To add excitement, features like leader boards and achievements will be introduced, allowing users to enjoy competitive game play. Users can also create a virtual showcase to display their favorite cards, making them even more special. Moreover, within the app, you'll discover various ways to earn valuable in-game coins, enhancing the rewards that accompany your collecting journey. Collectify isn't just an app; it's a thriving community where collectors unite to share, trade, and savor their mutual passion. It's not just about collecting; it's about connecting, enjoying the journey, and taking your collecting experience to new heights.

1.1. SCOPE

- + **Diverse Collecting:** Users will have access to a wide range of collectibles.
- + **Trading Cards:** Users can trade their collectibles with other users, allowing for the exchange of rare and valuable items.
- + **Adding Cards to Collections:** Users can add cards to their digital collections, creating a personalized inventory of their favorite items.
- + **Participating in Auctions:** The app will enable users to engage in auctions, providing a platform for bidding and acquiring sought-after cards.
- + **Managing Digital Wallet Balances:** Users can keep track of their in-app currency, making it easy to participate in transactions and auctions.
- + **Earning Valuable Game Coins:** Users will have opportunities to earn in-game coins through various in-app activities and achievements.

- + **Showcasing Favorite Cards:** The application allows users to display their most popular cards in a virtual showcase, sharing their collections with others.
 - + **Participating in Auctions:** The app will empower users to participate in auctions, creating a dynamic platform for bidding on and acquiring highly sought-after cards.
 - + **User-Friendly Interface:** The app will offer an intuitive and user-friendly interface for a smooth and enjoyable experience.
 - + **Leaderboards:** Users can compete with one another and track their progress on leaderboards, adding a competitive aspect to collecting.
 - + **Purchases:** App will not support game coin purchases with real money in its release version.
-
- **Real-time Physical Card Trading:** The application will not support real-time, physical trading or exchanging of tangible collectible items. All interactions will be limited to the digital world.
 - **Blockchain Technology Integration:** While blockchain technology is a trending feature in some collectible applications, it is out of scope for Collectify.
 - **Augmented Reality (AR) Features:** The inclusion of augmented reality elements, such as AR card viewing or scanning.
 - **Offline Functionality:** The application will not have full offline functionality. Users must have an active internet connection to engage in trading, view collections, and participate in auctions.
-
- ~ **Integration with External Payment Systems:** The application will not integrate with external payment systems beyond the in-app wallet in the initial release. All transactions, including buying, selling, or exchanging cards, will be conducted using the in-app wallet system. As the user base grows and in response to user needs, there may be considerations for enabling users to link external bank accounts or third-party payment services in future updates.

1.2. DELIVERABLES

Table 1.1: Table of deliverables

Deliverable Number	Deliverable	Delivery Date
1	Project Plan	10/11/2023
2	Collectify Application Template	9/11/2023
3	User Interface	10/11/2023
3.1	User Profiles	16/11/2023
3.2	User Registration Module	24/11/2023
4	Home Screen	10/11/2023
5	Application Design	01/01/2024
5.1	Leader boards and Achievements	20/12/2023
5.2	Card Trading Functionality	15/12/2023
5.3	Card Collection System	04/12/2023
5.4	Wallet Integration	10/12/2023
5.5	In-Game Coin Rewards System	17/12/2023
6	Search Functionality	13/11/2023
6.1	Filtering Functionality	25/11/2023
7	Notification System	30/12/2023
8	Source Codes	02/01/2024
9	Test and Final Deliverables	27/12/2023

1.3. FUNCTIONAL REQUIREMENTS

Table 1.2: Table of tasks

Functional Requirement	Associated Deliverable
Customer Information	1
Database Connection	2
Mobile Application Template	2
Integration with External APIs	2
User Profile Management	3.1
User Registration	3.2
Home Page Design	4
Card Display on Home Page	4
Display of Card Details	5
Card Trading and Exchange	5.2
Auction System	5.2
Card Collection Management	5.3
Buying Cards from the Shop	5.3
Favorite Cards Management	5.3
Digital Wallet Integration	5.4
In-Game Coin Rewards System	5.5
Card Browsing and Searching	6
Sorting of Cards	6
User Notifications	7
Testing and Quality Assurance	9

1.4. NON-FUNCTIONAL ISSUES

Performance

- Database queries are optimized to minimize latency.
- The application is able to accommodate a potentially large number of users logged into the system simultaneously, but with an awareness that this capacity may be subject to constraints or limitations.

Usability

- Application presents a user-friendly interface, making it easy for users to navigate and understand the app.

Security

- A security system typically grants access to accounts when users enter the correct username and password.

Portability

- The application is planned as a cross-platform solution, targeting compatibility with major operating systems such as iOS and Android, providing flexibility and accessibility to a broader user base.application.

Reliability

- This application take into account the system's ability to perform consistently and without failures over time. But since the application uses external database, there may be issues beyond our control.

Scalability

- This application prioritizes the incorporation of scalability in its system design. It utilizes load balancing, considers horizontal scaling, and continually monitors system performance, adjusting resources as needed in response to varying workloads.

2. PROJECT PLAN

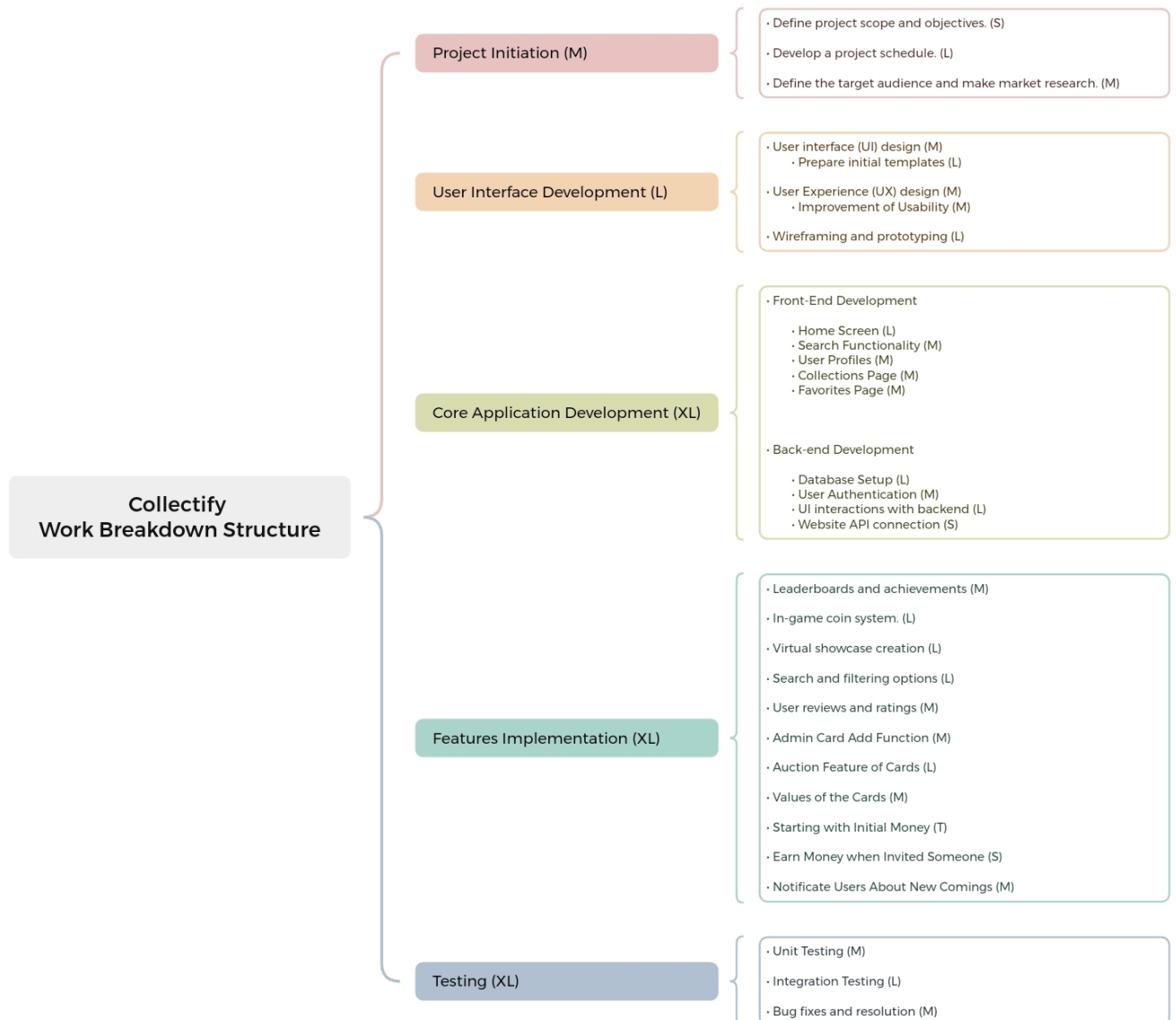


Figure 2.1: Work breakdown structure

3. ESTIMATES

Table 3.1: Task ManWeek Estimation

Stages	TotalManWeek	Tasks	ManWeek
Project Initiation	20.5	Defining Project Scope and Objectives	7
		Developing Project Schedule	7
		Market Research	6.5
User Interface Design	15	User Interface Design	7
		User Experience Design	7
		Wireframing and Prototyping	1
Core Application Development	9.5	Home Screen	1.5
		Search Functionality	2
		User Profiles	1.5
		Collections Page	0.5
		Favorites Page	1
		Database Setup	1
		User Interface Interactions	1
		Website API Connection	1
Features of App	11.5	Leaderboard and Achievements	1
		In Game Coin System	1
		Virtual Showcase Creation	1
		Search and Filtering Options	2
		User Review and Ratings	1
		Admin Card Add Function	1
		Auction Feature of Cards	1
		Value of the Cards	0.5
		Starting with Initial Money	0.5
		Invitation Incentives	1
		Notifications	1.5
Testing	6	Unit Testing	1
		Integration Testing	1.5
		Bug Fix	3.5

Total Project ManWeek = 62.5

4. RESOURCES

Table 4.1: Members and Roles

Member Name	Member ID	Member Role
Seyfullah Sait Şahin	150180097	Mobile App Developer
Tanay Bensu Yurttürk	150220766	Backend Developer
İrem Çağın Yurttürk	150220765	Backend Developer
Bilgehan Altıntaş	150180019	Mobile App Developer
Mustafa Deveci	150190109	Web Developer

Table 4.2: Mapping Task to Members

Member Name	Assigned Task
Seyfullah Sait Şahin	Visual Design For Mobile App and Implementation
Tanay Bensu Yurttürk	Admin Page and Backend Integration
İrem Çağın Yurttürk	Mobile App and Backend Integration
Bilgehan Altıntaş	Mobile App Development
Mustafa Deveci	Admin Page Development

5. SCHEDULE

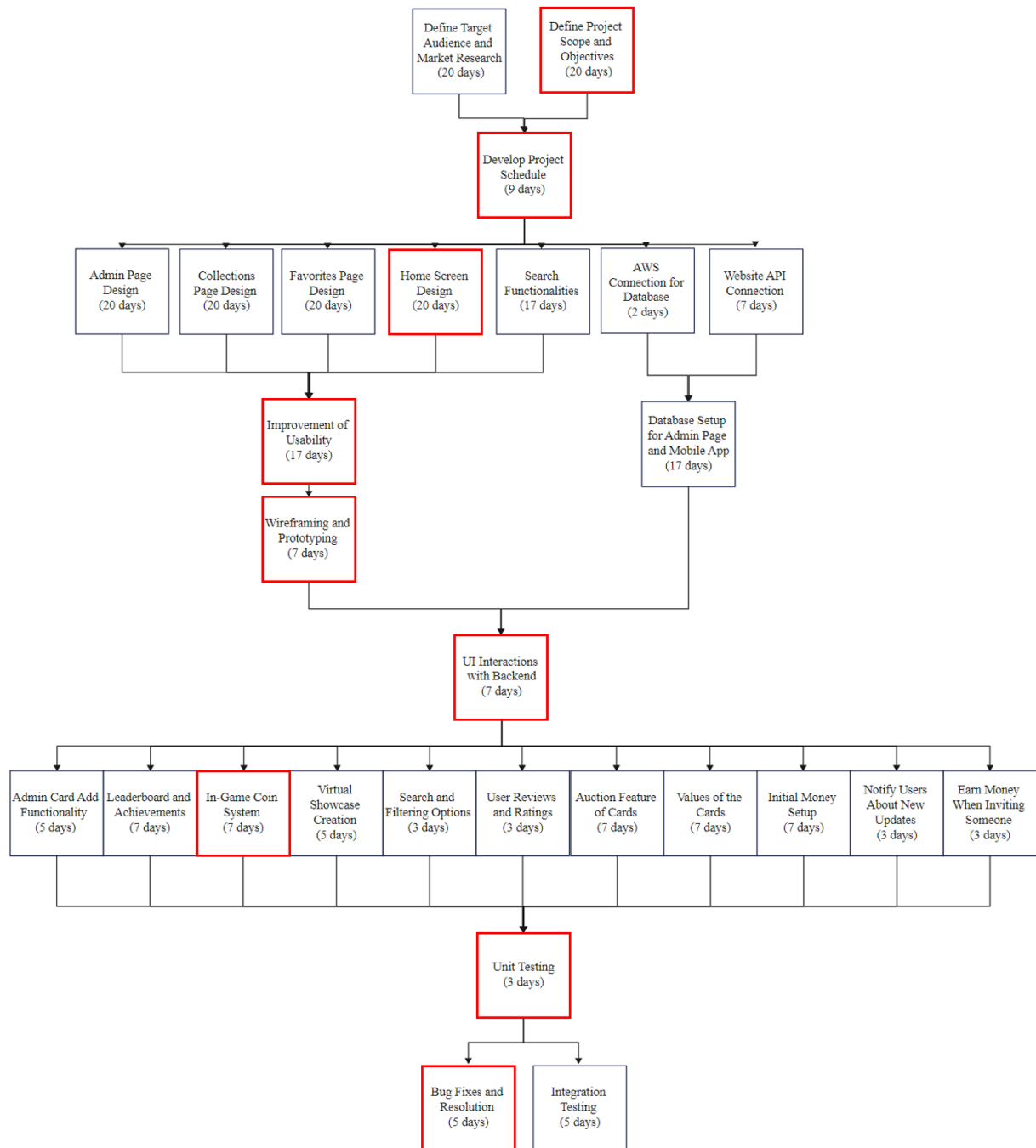


Figure 5.1: Pert Chart of the Tasks

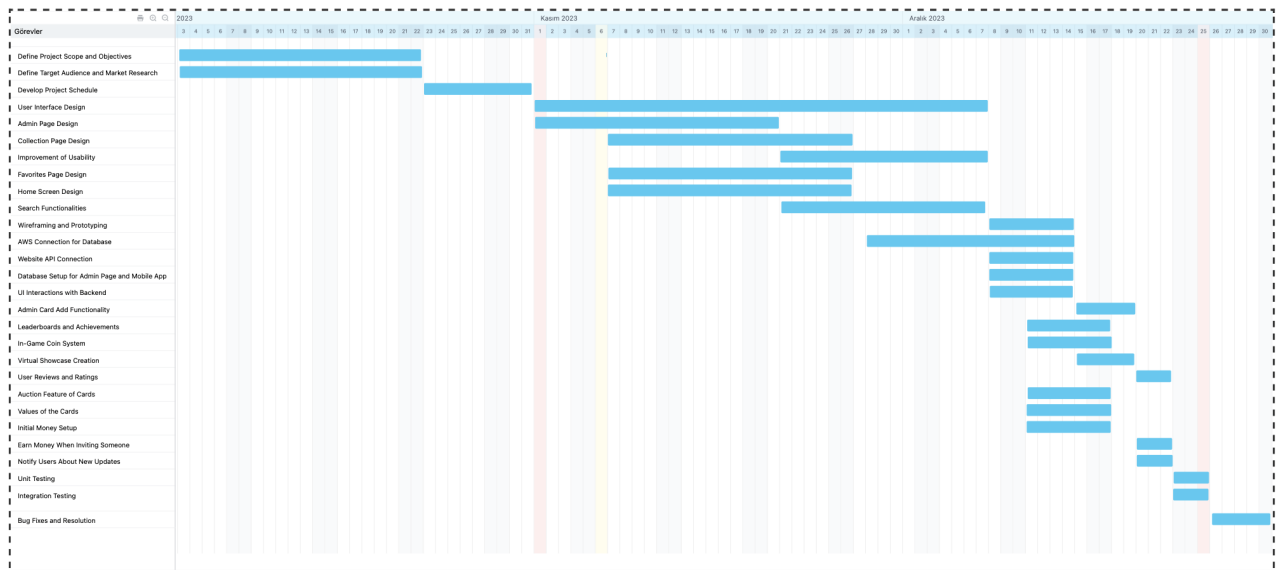


Figure 5.2: Gantt Chart

6. RISKS

During the project the following circumstances pose risks to timely completion.

- Delivery deadline will be tightened
Wrong estimation of development time may delay the project completion.
- Staff may be inexperienced
Staff may not have good command of certain necessary programming languages or programs
- Auction technology implementation difficulty
Auction system will rely on simultaneous price increases and offers. It may be hard to get it working right.
- Customer may demand more features
During development customer may ask for more features to be added.
- May require many updates
Having the same card items will become repetitive after some time causing more updates with unique items to be added later on.
- Too many users may impact server
Excessive usage of the existing API may put strain on the servers.
- May need to be scalable
In case of excessive number of users and too many collectibles, database may not be enough.
- Security measurements could be applied
If real-money payment added, app could be targeted by adversarial attacks.

Table 6.1: Risk Probability/Impact Chart

Risks	Category	Probability	Impact
Delivery deadline will be tightened	BU	50	2
Staff may be inexperienced	ST	60	2
Auction technology implementation difficulty	TE	30	3
Customer may demand more features	CU	25	1
May require many updates	TE	50	2
Too many users may impact server	TE	60	3
May need to be scalable	TE	20	2
Security measurements could be applied	TE	10	2

Table 6.2: Risk Mitigation Chart

Risks	Affect	Description
Delivery deadline will be tightened	Project	Revise project schedule to meet the new, tighter deadline.
Staff may be inexperienced	Project	Teams should help each other in different tasks and collaborate.
Auction technology implementation difficulty	Project	Simplify auction technology implementation for better efficiency.
Customer may demand more features	Project	In regular meetings, exchange project information with the customer.
May require many updates	Project	Develop a flexible content roll-out plan for continuous updates.
Too many users may impact server	Product	Server capacities should be increased.
May need to be scalable	Product	Database structure can be improved.
Security measurements could be applied	Project	Using security protocols will be critical.