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1. Use Case Diagram



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2. User Personas

A) **Name:** Amy Jackson

Demographics:

- Age: 35
- Location: McClean, VA
- Occupation: Nutritionist
- Household Income: \$80k
- Marital status: married
- Kids: 4



Technology:

- Mobile:
 - Amy (iOS)
 - Husband (Android)
- Computers:
 - A home desktop
 - Both Amy and her husband have laptops for work

Credit Cards / Loyalty Cards:

- Loyalty Cards
 - Kroger Card
 - Target Card
 - Sheetz Card
- Credit Cards
 - Capital One QuicksilverOne Cash Rewards Credit Card

Description:

Amy is married and a mother of 4 children aged 8-14. She and her husband both work full-time jobs. For a family of 6, their income does not go as far as they would like. Within any given month, choices are made on what to buy and what to live without. Because money is tight, Amy and her husband do their best to

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save as much as possible. They have loyalty cards for every store that they frequently shop at and they both have the same credit card. Making sure they're being budget friendly as possible is a long and time-consuming process. This means it sometimes isn't done as well as it could be as there are many other tasks that require their attention around the house.

Goals/Needs:

Amy and her husband would benefit from a way to manage their savings and rewards easier. If the time spent on budgeting was reduced, they would have more time for activities around the house. They would also miss fewer reward opportunities.

B) **Name:** Joseph Gonzalez

Demographics:

- Age: 29
- Location: Boston, MA
- Occupation: Financial Analyst
- Household Income: \$90k
- Marital status: Single
- Kids: 0



Technology:

- Mobile:
 - iOS
- Computers:
 - Work laptop
 - Personal laptop

Credit Cards / Loyalty Cards:

- Loyalty Cards
 - Martins Card
- Credit Cards
 - Citi AAdvantage Credit Card
 - American Express Gold Card

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- Apple Card

Description:

Joseph is a financial analyst working in Boston, MA. He is not married and has no kids, so it is fairly easy for him to budget his money. Despite this, he still likes to get rewards and points where he can from his credit and loyalty cards. Sometimes though he doesn't even bother using them as it gets very frustrating trying to keep track of each card. He doesn't like to spend that much time on his phone and would rather be in the moment.

Goals/Needs:

Joseph would benefit from a way to manage all of his cards in one place. He would be more willing to make use of his various rewards cards if it didn't mean using multiple apps and software.

C) Name: Jennifer Randall

Demographics:

- Age: 27
- Location: New York, NY
- Occupation: Business Analyst
- Household Income: \$105k
- Marital status: Single
- Kids: 0



Technology:

- Mobile:
 - iOS
- Computers:
 - A home desktop
 - A laptop

Credit Cards / Loyalty Cards:

- Loyalty Cards

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- Macy's Card
- ExxonMobil Smart Card
- AAdvantage
- Credit Cards
 - Capital One Venture X Rewards Credit Card
 - Amazon Prime Rewards Visa Signature Card
 - Citi Custom Cash Card

Description:

Jennifer is a business analyst working for a big tech company. She loves to keep up with the latest fashion and spends quite often on apparels. She is also an avid traveler and has her plans booked for almost every weekend or any other holiday. To keep enjoying her travel and shopping interests comfortably within her disposable income, she has interests in shopping rewards, coupons and deals. She, however, feels frustrated by management of multiple credit cards and inability to find goods coupons on the internet. She feels compromising her other life goals like saving for a home because of it.

Goals/Needs:

She, however, feels frustrated by management of multiple credit cards and inability to find goods coupons on the internet. She feels compromising her other life goals like saving for a home because of it. She wants a tool to manage the multiple cards held by her to recommend the best one to use at a select retailer. She also wants this tool to recommend coupons/deals. Her primary goals are:

- To increase personal savings
- To keep enjoying her travel and shopping interests
- To buy products and services at the best price

D) **Name:** James Carter

Demographics:

- Age: 24
- Location: Washington DC



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- Occupation: Grad Student
- Household Income: \$ 36k
- Marital status: Single
- Kids: 0

Technology:

- Mobile:
 - iOS
 - Android
- Computers:
 - A home desktop
 - A laptop

Credit Cards / Loyalty Cards:

- Loyalty Cards
 - Starbucks Rewards
 - DD Perks
 - AAdvantage
- Credit Cards
 - My Best Buy Credit Card
 - Amazon Prime Rewards Visa Signature Card
 - Deserve Edu Mastercard

Description:

James is a graduate student and also works as research assistant in a tech lab. He is tech savvy and loves having the most recent gadgets in the market. He's also a coffee lover. Shopping for electronics and coffee makes the biggest part of his monthly expenditure. He wants to optimize his spendings by getting the best deals for the products and services and also maximizing his card cashback and rewards. Not being able to identify the ideal card to make the spending and not having time to search for coupons/deals because of his busy schedule in the lab has left him frustrated.

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Goals/Needs:

He wants to optimize his spendings by getting the best deals for the products and services and also maximizing his card cashback and rewards. Not being able to identify the ideal card to make the spending and not having time to search for coupons/deals because of his busy schedule in the lab has left him frustrated. His primary goals are:

- To increase personal savings
- To buy products and services at the best price
- To maximize rewards and cashback for his credit cards and loyalty cards
- To save time searching for shopping deals

3. User Stories

No.	User Stories
1.	As a developer, I need to have a comprehensive style guide, So that I can properly implement the UI
2.	As a working parent, I want to quickly get reward recommendations, So that I can spend less time shopping
3.	As a frequent traveler, I want to get the best deals relative to my location, So that I can save money on the go
4.	As a loyalty and credit cards holder, I want to register for an account, So that I can manage and optimize my card usage
5.	As a registered user, I want to be able to access my account, So that I can manage my saved information
6.	As a regular credit/loyalty card user, I want to be able to add new credit/loyalty cards to my account, So that I can manage my rewards easier
7.	As an independent student, I want to find the best coupons, So that I can save money for rent

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8.	As a busy consumer , I want to authenticate myself, So that I can see optimized deals and history
9.	As a forgetful user , I want to be able to retrieve a lost password, So that I can maintain access to my account.
10.	As a cautious customer , I want the application to be secure, So that my data does not get leaked/stolen.
11.	As a destitute customer , I want the application to be free/cheap, So that I can access the application.
12.	As a disgruntled user , I want to be able to delete my account, So that I can remove my information from the service
13.	As a shopper with a list , I want to search for items, So that I can find deals for items to buy beforehand.
14.	As a customer , I want to click through an item link to the corresponding web store, So that I can purchase the item
15.	As a fiscally responsible user , I want to be able to track rewards usage for specific cards, So that I can best manage my rewards
16.	As a patient customer , I want to be able to save searched items, So that I can track the deals and price for that item
17.	As a mobile user , I want to be able to access reward recommendations via smartphone, So that I can search for deals while shopping in-store
18.	As a busy consumer , I want to be informed when products are on sale, So that I am motivated to purchase them
19.	As a regular shopper , I want to be able to see deals from my favorite stores, So that I can find items that I may be interested in
20.	As a frequent shopper , I want my shopping history to be saved, So that I can return to a shopping session
21.	As an unregistered user , I want to see general deals for popular stores, So that I can make informed shopping decisions
22.	As an unregistered user , I want to see coupons for popular stores, So that I can save money in potential purchases
23.	As an unregistered user , I want to be able to see the best possible credit or loyalty card for a shopping location, So that I can gather information about which cards to apply for

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24.	As a consumer, I want reward recommendations and deals to be up to date, So that I can acquire correct and accurate information
25.	As a web-application user, I want to be able to seamlessly navigate through the app, So that I don't think twice about what to do next
26.	As a discerning customer, I want to see popular items separated by category on the home page, So that I can find items in the right category to buy
27.	As a confused customer, I want to have a support portal, So that my questions can be answered

4. Scrum

A. Product Backlog

Rank	User Stories	Test	Task	Total Task Hours
1	As a developer, I need to have a comprehensive style guide So that I can properly implement the UI	All components and functionality are represented in the wireframes. All styles take accessibility into account.	1) Create wireframe for all application pages, 2) Create styles for major website parts (buttons, logo, text, etc.), 3) Component structure outline	12
2	As a working parent, I want to quickly get reward recommendations So that I can spend less time shopping	Create user account, input credit and loyalty cards, visit store while signed in, check recommended card is best available in inputted cards for the store	1) Set up Credit Card API key, 2) Set up API call to get updated Credit Card information as needed, 3) Set up component to hold top credit card recommendation, 4) Set up database to store User Information, 5) Create automated tests	11
3	As a frequent traveler, I want to get the best deals relative to my location So that I can save money on the	Create a user account, sign in on a mobile device, allow access to geolocation data, verify that deals are from	1) Set up Geolocation API key, 2) Set up Deals API key (Axesso is an option), 3) Set up Coupons API key, 4) Set up	10

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	go	stores around the present location of the phone. Set a different location manually, verify that deals are from stores present in the different location	component for user to personally input location, 5) Set up button for user to manually enable automatic geolocation, 6) Add table to user database to store location history	
4	As a loyalty and credit cards holder, I want to register for an account So that I can manage and optimize my card usage	Create a user account, add a credit card to the account, verify that the user data is stored in the correct database	1) Add table to user database for storing user login information, 2) Add table to user database for information from initial survey, 3) Set up backend logic for creating a new user, 4) Set up component to capture user information from survey, 5) Set up component to capture user information from registration including existing cards if possible, 6) Create automated tests	15
5	As a registered user, I want to be able to access my account so that I can manage my saved information	Account UI is accessible for logged in users, takes user to correct account page, non-registered users are sent to a signup form, account information can be edited, account can be deleted, wallet can be accessed	1) Create account UI component, 2) backend logic to pull/edit user data, 3) delete account functionality, 4) Create automated tests	12
6	As a regular credit/loyalty card user, I want to be able to add new credit/loyalty cards to my account So that I can manage my rewards easier	Create a user account, go to the user profile, select the UI element to add credit cards and add a credit card and a loyalty card to the account. Verify that the credit card and loyalty card were added to the right table in the database	1) Set up component to take in details about credit/loyalty cards, 2) Connecting credit/loyalty card details to existing user database table, 3) Create automated tests	9
7	As an independent student, I want to find the best coupons So that I can save money for rent	User can access coupons specific to them, coupons are relevant, coupons are valid, functionality to copy coupon code, API errors are handled without crashing app	1) Coupon component, 2) backend logic to send/receive API info, 3) Create automated tests	10
8	As a busy consumer, I want to authenticate myself So that	User can successfully login after entering the correct information, a user cannot	1) Create login component, 2) backend logic to compare entered information to DB	17

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	I can see optimized deals and history	login to an account with incorrect info, a user cannot login with no info entered, error messages appear if user has entered incorrect info, there is a place for users to register for an account, users are taken to a new page after successful login	info, 3) create landing page for where user will be redirected to after success, 4) create error handling for incorrect user info, 5) create way for user to register if no account, 6) Create automated tests	
9	As a forgetful user, I want to be able to retrieve a lost password So that I can maintain access to my account.	user must be able to successfully reset password, on completion the password is changed in the DB, user must be verified by code sent to email, email code must be verified by backend, code should expire after an hour	1) Create forgot password component, 2) backend logic to verify email address to an existing account, 3) backend logic to generate one time code to authenticate the user with the correct email, 4) backend logic to verify entered code, 5) backend logic to reset password, 6) Create automated tests	14
10	As a cautious customer, I want the application to be secure so that my data does not get leaked/stolen.	Ensure database records are encrypted, API calls return encrypted data, and that data related to the logged-in user is only returned.	1) Implement encryption at rest, 2) encryption in transit, and 3) client-side encryption when accessing data. 4) Ensure that API calls return data related only to the user by adding backend logic to verify the user is only accessing their data. 5) Create automated tests	8
11	As a destitute customer, I want the application to be free/cheap, so that I can access the application.	Ensure that the login, sign up and home pages have no cost barrier.	1) Ensure that there are no UI/UX and cost barriers or challenges to accessing a site or creating an account.	3
12	As a disgruntled user, I want to be able to delete my account So that I can remove my information from the service	Ensure that all data related to the user that is deleting the account is permanently removed from the database.	1) Add backend logic that removes user data from the user table. 2) Cascade delete user data - remove records from other tables that reference specified user ID as foreign key. 3) In the user profile, add a delete button option along with a warning message upon click. After the account is deleted, redirect to home or login page. 4) Create automated tests	8

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13	As a shopper with a list, I want to search for items So that I can find deals for items to buy beforehand.	Ensure that deals/coupons related to the searched item are returned.	1) Create a page/view with a search bar UI component and list UI component that list deals for items searched. 2) Invoke a call to Coupon/Deals API with the searched text as a query parameter. 3) Populate results into a list component. 4) Create automated tests	10
14	As a customer, I want to click through an item link to the corresponding web store So that I can purchase the item	Ensure items are clickable and redirect to the appropriate page	1) Set up UI component representative of item linked to relevant website, 2) Create backend logic to grab website using Coupons/Deals API, 3) Create automated tests	6
15	As a fiscally responsible user, I want to be able to track rewards usage for specific cards So that I can best manage my rewards	Ensure users can log in, enter reward usage for specific cards, and then be delivered the relevant history	1) Create database element to store list of rewards used for each specific card, 2) Create backend logic to save relevant information like card/reward type/amount spent, 3) Create UI component for users to view their reward usage history, 4) Create automated tests	8
16	As a patient customer, I want to be able to save searched items So that I can track the deals and price for that item	Ensure that users can log in, save specifically searched items, and then be delivered the relevant saved items	1) Create database element to store each user's searched items, 2) Create backend logic to save information such as item searched and deals/price of item, 3) Create UI component for users to view saved items	10
17	As a mobile user, I want to be able to access reward recommendations via smartphone So that I can search for deals while shopping in-store	Using an Android/iOS device, test each feature present in our application to ensure a mobile-friendly experience, and adjust accordingly	1) Ensure UI components are mobile-friendly, making it easy for users to access recommendations and application features through their smartphone, 2) Create automated tests	5
18	As a busy consumer, I want to be informed when products are on sale So that I am motivated to purchase them	Set up a dummy item in the backend with currently active sales. Sign in as a user and open the homepage. Select the dummy item and favorite/track it. Change the	1) Add component to allow to select stores/items to follow, 2) Add table to user information database to contain tracked stores/items, 3) Set up custom email notification system, 4) Create automated tests	9

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		dummy item's price in the backend. If the user gets an email about the item, then the test passes		
19	As a regular shopper, I want to be able to see deals from my favorite stores So that I can find items that I may be interested in	Set up a user account, answer the user survey, select at least one favorite store in the survey or later in the user profile. Open the homepage while signed in as that new user. The user should see a section on the homepage that displays deals from their favorite store(s)	1) Add component to user profile to display deals from favorite stores, 2) Create automated tests	5
20	As a frequent shopper, I want my shopping history to be saved So that I can return to a shopping session	Sign into a user account. Search for several items using search functionality, close the webpage. Reopen the web app and check the user profile for the previously searched for items. The test passes if the previous searches were logged	1) Add table to user information table for search/shopping history, 2) Implement backend logic to log search/shopping history, 3) add component to user profile to display search/shopping history, 4) Create automated tests	8
21	As an unregistered user, I want to see general deals for popular stores So that I can make informed shopping decisions	Open the web application in a non-signed state. The homepage should contain deals from popular stores/websites	1) Set up component to display deals on the homepage for an unregistered user, 2) Create automated tests	6
22	As an unregistered user, I want to see coupons for popular stores So that I can save money in potential purchases	Open the web application in a non-signed state. The homepage should contain coupons from popular stores/websites.	1) Set up a component to display the coupons to the user. 2) Create automated tests	7
23	As an unregistered user, I want to be able to see the best possible credit or loyalty card for a shopping location So that I can gather information about which cards to apply for	Open the web application in a non-signed state. Ensure that the search input form takes the user input accurately. Ensure that clicking on the search button provides the best card option to the user. Ensure that the button below the best card option displays more options for cards to the user.	1) Set up a component to get search input from the user for a shopping location. 2) Implement logic to sort the API result based on the user's input. 3) Set up a component to display the best card to the user. 4) Set up a component to display the next ten top cards extracted from applying the logic. 5) Create automated tests	16

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24	As a consumer, I want reward recommendations and deals to be up to date So that I can acquire correct and accurate information	Ensure that the user can login to his profile. Ensure that deals are populated on the home screen. Ensure that the expired button functions correctly to record and submit the expired deals in the database.	1) Retrieve deals and rewards. 2) Display deals to the user. 3) Implement an expired button for the user to report expired deals and rewards. 4) Store the expired deals and rewards in the database in order to filter them out in the next API call. 5) Create automated tests	9
25	As a web-application user, I want to be able to seamlessly navigate through the app So that I don't think twice about what to do next	Perform Alpha and Beta testing and perform a user experience survey.	1) Ensure that user interfaces are consistent. 2) Reduce cognitive load and make it comfortable to interact with a application (i.e., remove irrelevant or rarely used elements), 3) Create automated tests	4
26	As a discerning customer, I want to see popular items separated by category on the home page So that I can find items in the right category to buy	Sign in to the user account. Coupons related to selected user items displayed on the screen. 2. Select a store. Most popular coupons of that store displayed on the screen.	1) Create a new user profile. Select and mark several items as favorites. 2) Call coupon API to retrieve the most popular coupons from the selected store and display the items on the screen. 3) Create automated tests	7
27	As a confused customer, I want to have a support portal So that my questions can be answered	Open the application. Help/FAQ link should be displayed on the front screen. Login to a user account. Help/FAQ link should be displayed on the user profile.	1) Create a webpage with potential user related queries. 2) Link the webpage on the front screen of the application and the user profile. Save and reload the application. 3) Create automated tests	8

Story Rank	Task 1 Hours	Task 2 Hours	Task 3 Hours	Task 4 Hours	Task 5 Hours	Task 6 Hours
1	4	4	4			
2	1	3	3	2	2	
3	1	2	1	4	1	1
4	1	1	3	4	4	2

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5	7	2	1	2		
6	5	2	2			
7	5	3	2			
8	5	2	4	2	2	2
9	6	1	3	1	1	2
10	2	2	1	1	2	
11	3					
12	2	2	2	2		
13	4	1	3	2		
14	3	1	2			
15	1	1	6			
16	1	2	2	5		
17	3	2				
18	3	1	3	2		
19	3	2				
20	1	2	3	2		
21	4	2				
22	5	2				
23	6	2	2	4	2	
24	1	4	1	1	2	
25	2	2				
26	3	2	2			
27	5	1	2			

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B. Product Roadmap

ROADMAP									
	Sprint 1			Sprint 2			Sprint 3		
Feature Categories	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
UI Guide	General UI style/design and consistency								
Recommendation Engine	Recommendation engine credit card backend and user database setup								
	Recommendation engine geolocation backend and user database setup								
	Recommendation engine coupon backend								
				Sales backend and notifications					
							Coupon deliverance functionality		
							Guest user functionality for credit/loyalty cards		
Account Creation	User database/backend setup for accounts and credit cards								

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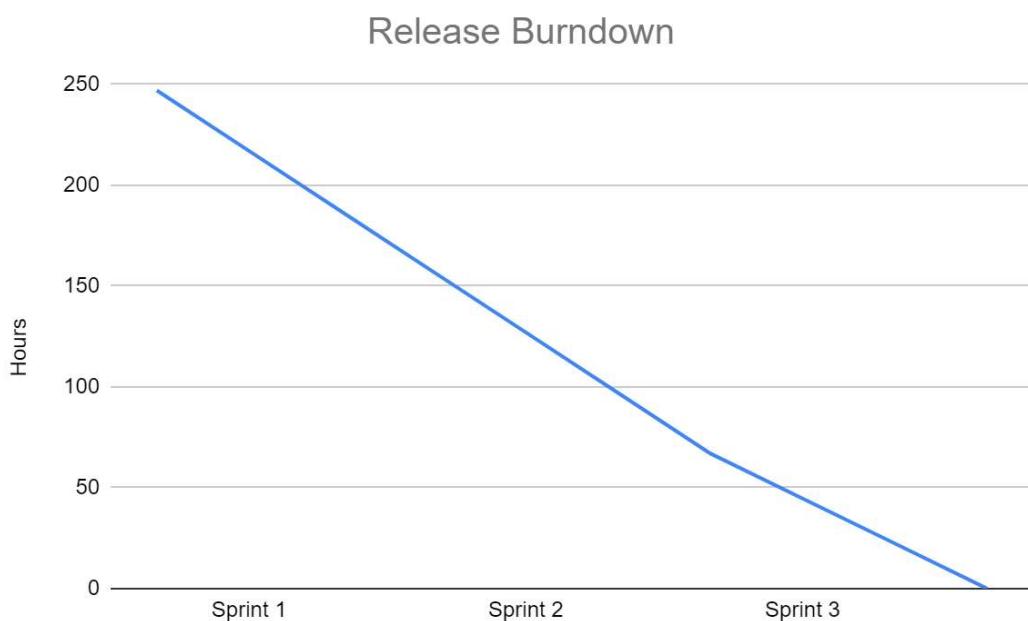
	Account UI and creation/deletion functionality						
		Credit card and loyalty card storage system					
			Account creation authentication functionality				
			Account modification functionality				
			Account deletion functionality				
System Integrity	Record encryption and security						
			Account encryption and security				
				Search engine functionality			
						Report item functionality	
						Support portal	
Routing / Navigation	Item redirection						UI enhancement /modification for mobile
							Navigation and UI enhancement
User Management			Credit/loyalty card logging				

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			history				
			Favoriting/saving system for items				
			Shopping history backend and database				
						Guest user functionality for popular store deals	
						Guest user functionality for popular store coupons	
							Favoriting system for stores

C. Product Burndown Chart



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5. GitHub Repository

CS5834-Fall 22 > RewardReady > Repository

main rewardready / + History Find file Web IDE Clone ▾

Upload New File Ayush Sahay authored just now 5f687416

Name	Last commit	Last update
Agenda_for_9_12.docx	Upload New File	3 minutes ago
Copy_of_Product_Feature_Roadm...	Upload New File	1 minute ago
Copy_of_Simple_Roadmap.xlsx	Upload New File	1 minute ago
P1_-_Project_Idea_Presentation.p...	Upload New File	1 minute ago
Phase_2_Info.xlsx	Upload New File	just now
Product_Roadmap.xlsx	Upload New File	just now
Project_Charter.docx	Upload New File	just now
Project_Charter_with_new_format...	Upload New File	just now
README.md	Update README.md remove roadmap	15 minutes ago
Use_Case_Diagram_Test.docx	Upload New File	just now
User_Personas.docx	Upload New File	just now