MOD003484 - Software Principles
Assessment 1

Team members:
Matt Davidson - 2011817
Marcel Ifegbu - 2024973
Abdulnafay-Mohammed Irfan - 2028741
Joao Henrique-Costa-Santos - 2036649

Table of contents:

1. **Task Allocation List**

Matt Davidson - Team Leader, Project Requirements, Prototype, and Evaluation

Marcel Ifegbu - Flow Charts and Use Case Diagrams

Joao Henrique-Costa-Santos - Pseudocode and Truth Tables

Abdul-Nafay Mohammed - Wireframe Diagram and Navigation Maps

2. Project Requirements

Redgate maintains a fund that teams can use for social activities called the feel good fund.
Our brief was to design a system that would allow team members to see their budget and track their expenses.

The system must allow teams to enter what they have spent. It is not, however, a replacement to the expensing process so managing approval of spends and the payout of expenses is out of scope.

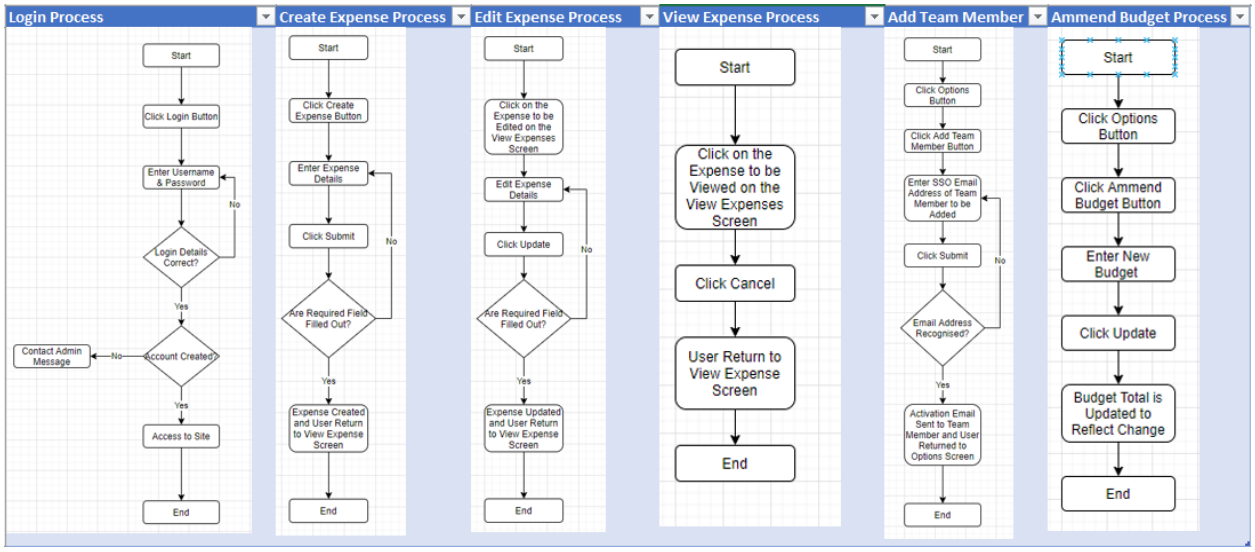
We, therefore, designed a system with 3 main uses: Entering spends, Editing spends, and Viewing spends. Beyond this we decided some further actions were required such as logging in with redgate SSO details, adding team members (we decided against a feature for removing team members as a person can only belong to one team at a time so if they are added by someone from a different team they will be removed from their original team), and amending the budget figure as this can change for a few reasons.

We felt like there was little reason to implement lots of safety measures in relation to amending the budget, entering spends, and adding people to teams because as the expenses are still handled on a separate platform someone increasing their budget without authorisation would not result in the team gaining extra budget but just expenses not being approved. Also from speaking to our contact at Redgate it was clear that the feel good fund is managed on the basis of trust which should be continued onto the digital platform.

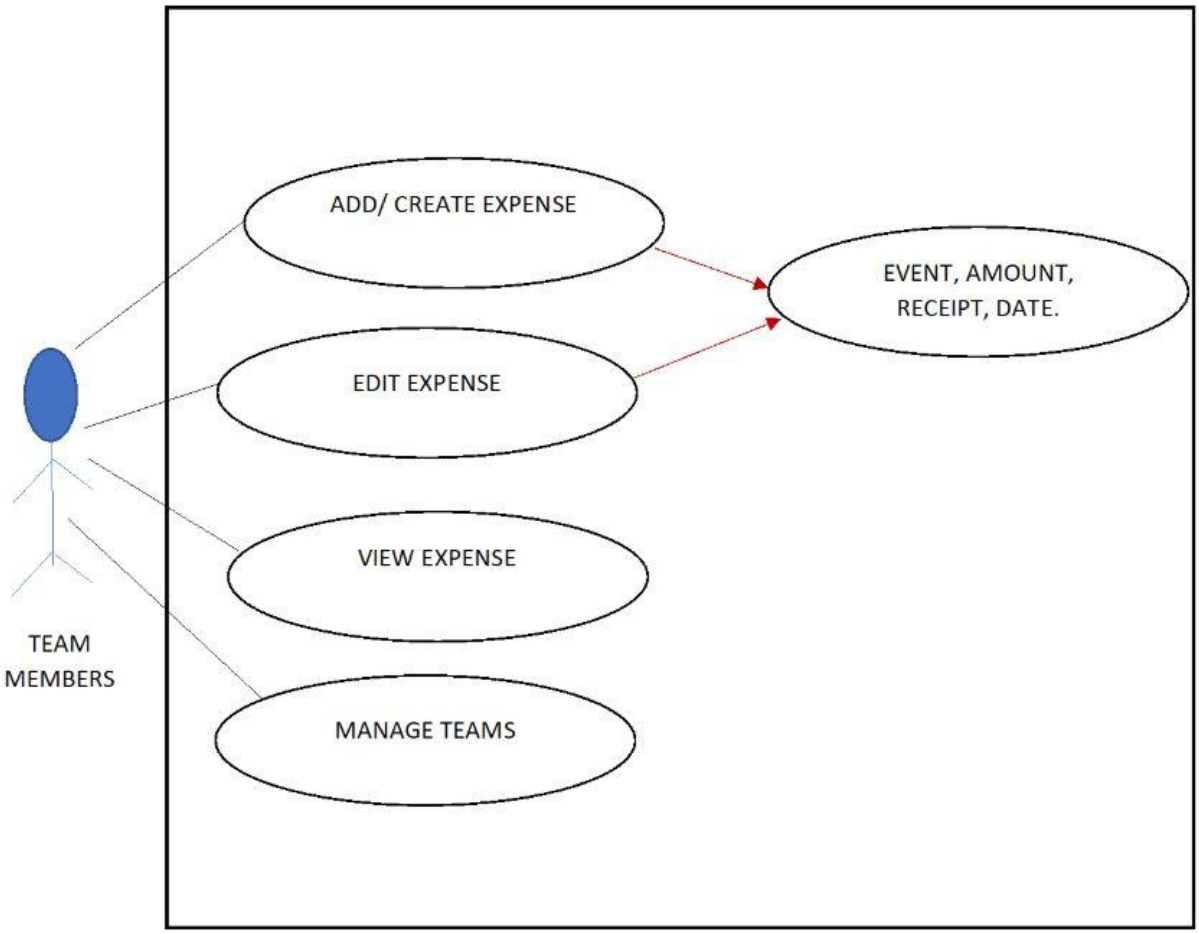
We also decided to only have one user type because from the Q&A sessions we learnt that everyone in each team should have equal access to the platform to input expenses to take pressure off the team leader.

We did not implement a check on the budget going below £0 because it was explained that in this scenario expenses would not be approved and teams would have to pay out of their own money, but being able to track the overspend would still be useful.

3.1 Project Design Solutions - Flow Charts



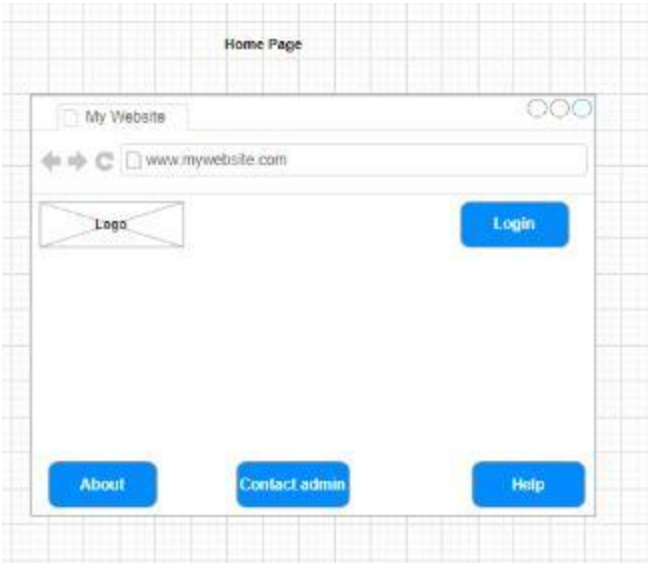
3.2 Project Design Solutions - Use Case Diagrams

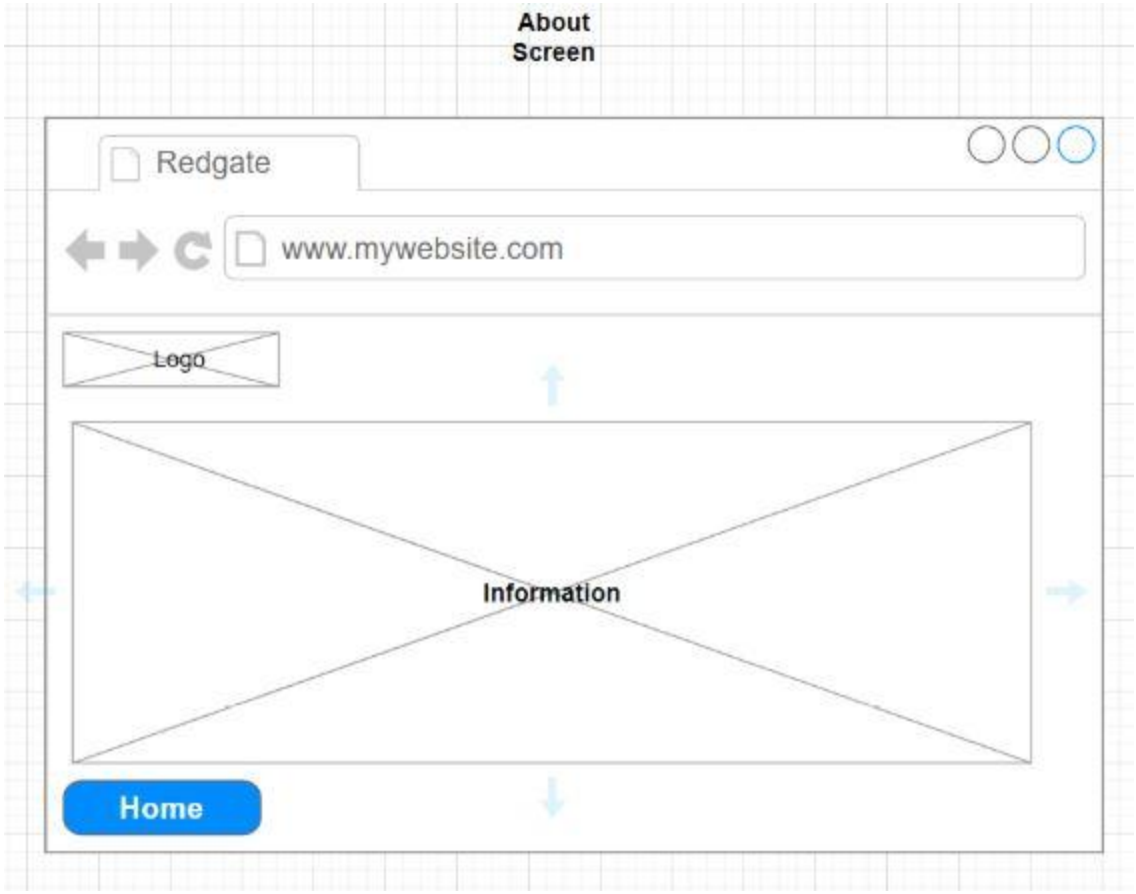


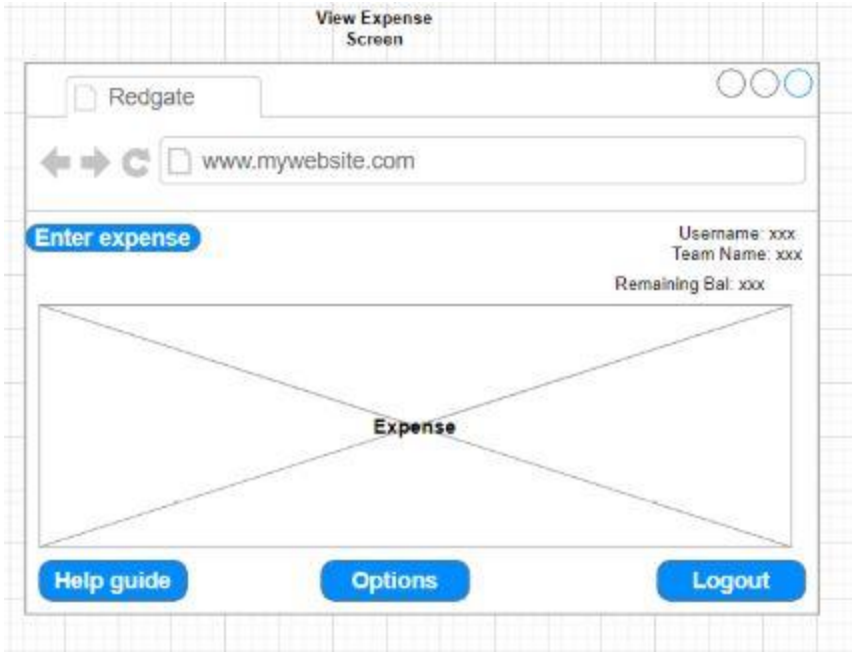
USE CASE DIAGRAM: A use case is a list of actions that define the interactions between a role and a system to achieve a goal. It is a great way to visualize the different users involved in a system and how those users interact with the system. It corresponds to a set of behaviors that the system can perform in interaction with its actors and that produces an observable result.

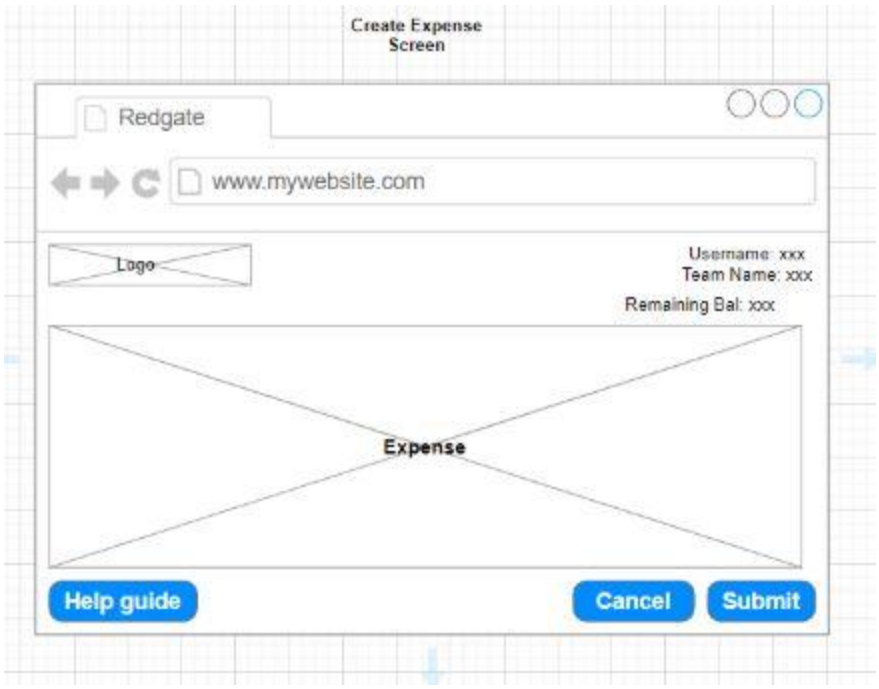
This is a fund budgeting systems use case, as you can see it specifies the development requirement of a system. They identify and describe not only the relationships with the actors (team members and administrator) but also the units involved in the process.

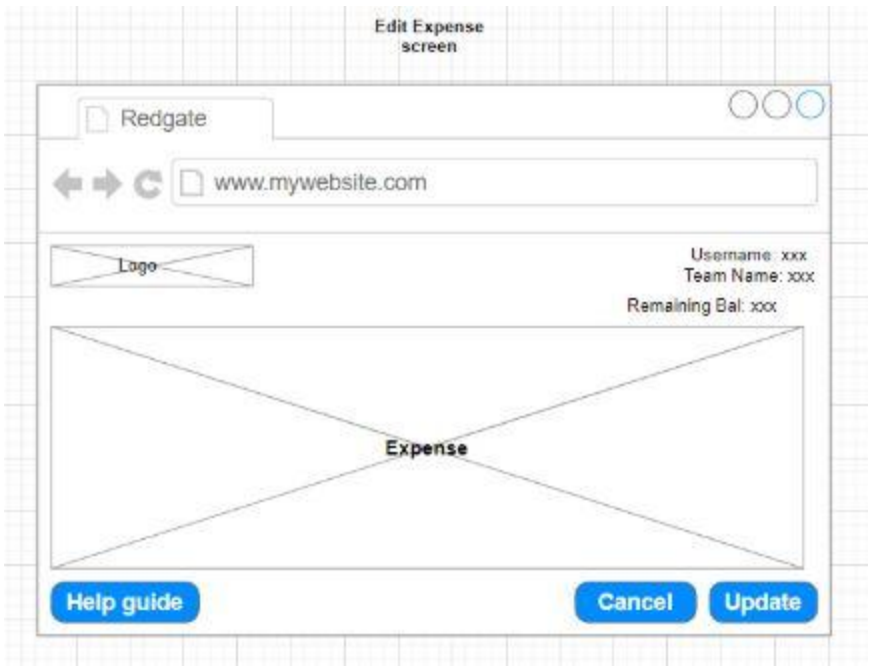
3.3 Project Design Solutions - Wireframe Diagrams

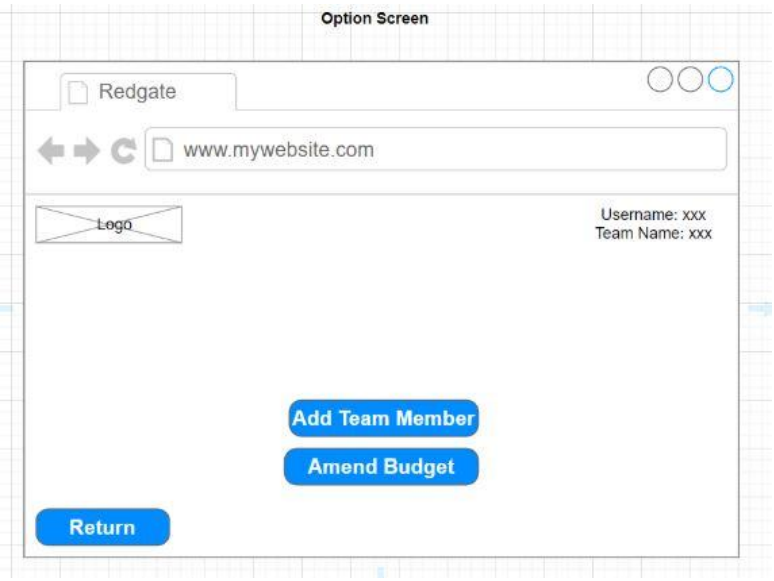


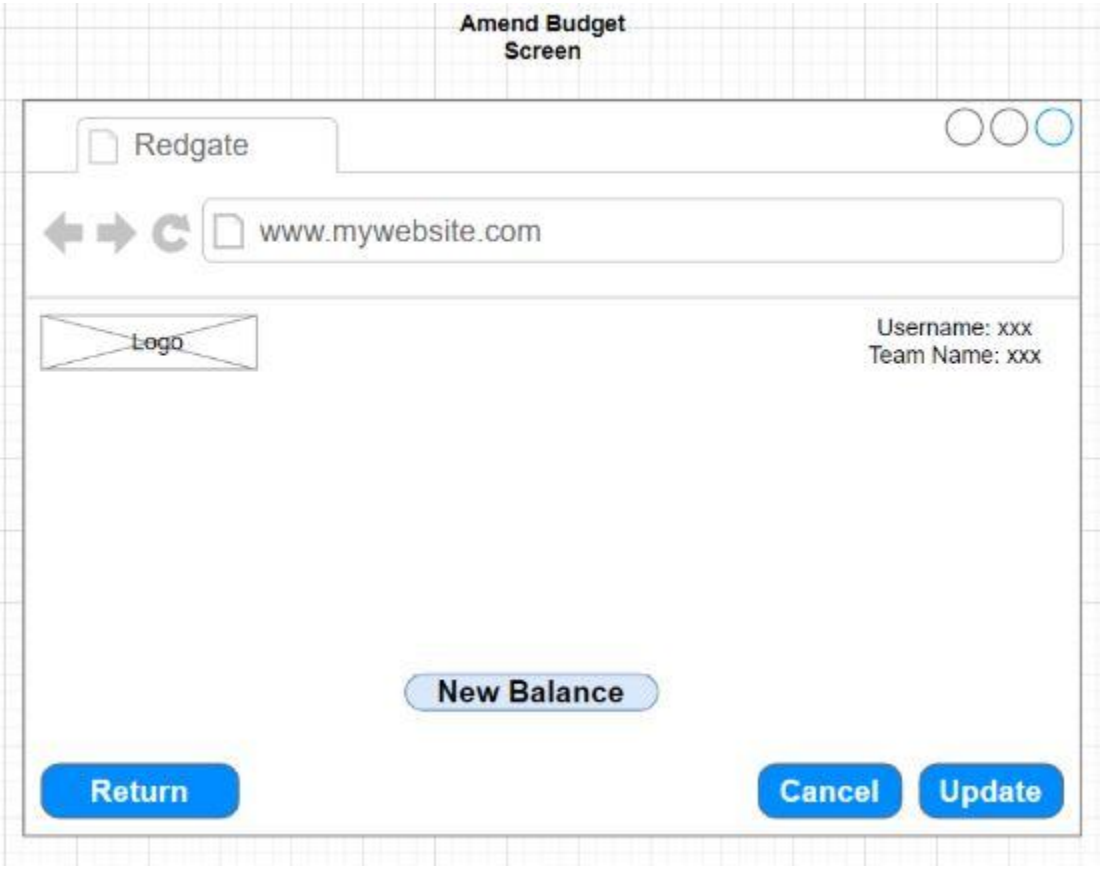

About
Screen
Redgate
www.mywebsite.com
Logo
Information
Home

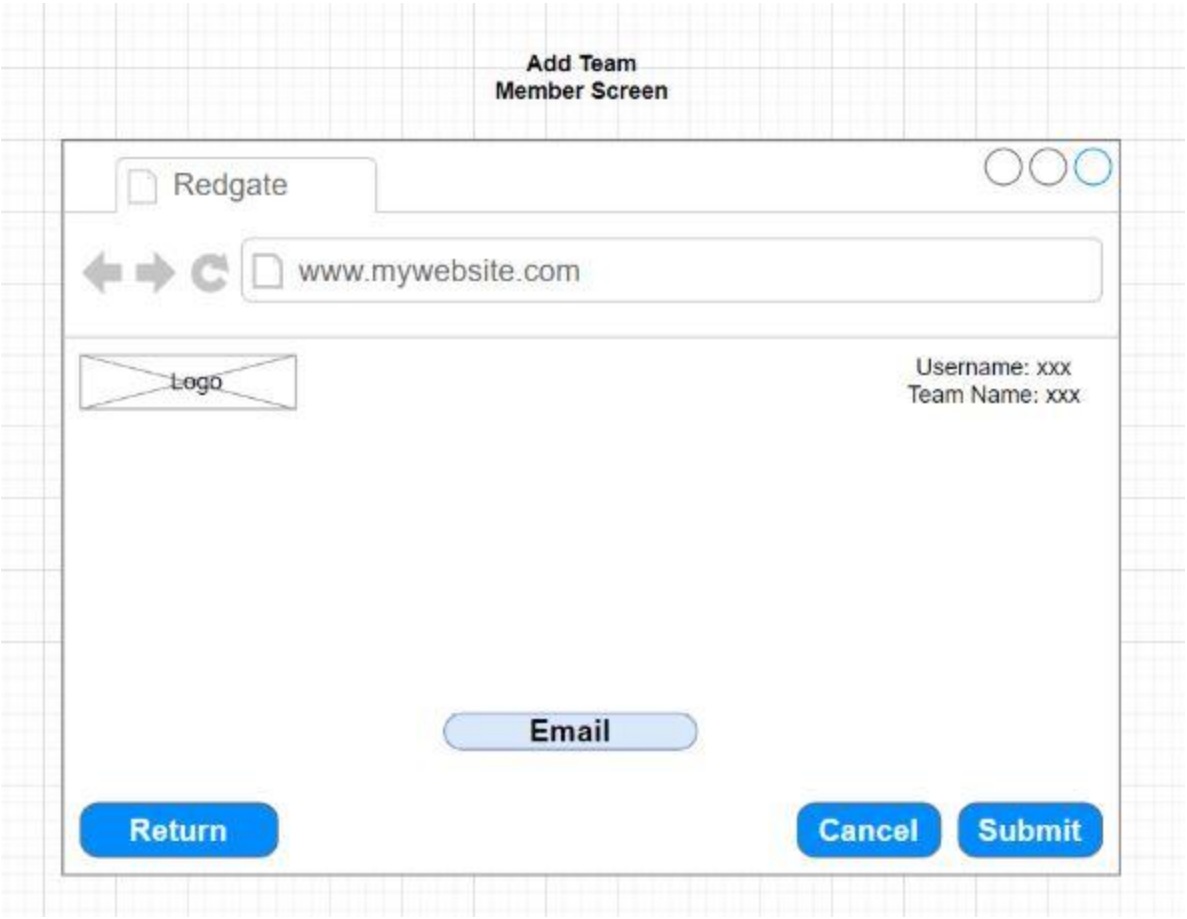

View Expense
Screen
Redgate
www.mywebsite.com
Enter expense
Username: xxx
Team Name: xxx
Remaining Bal: xxx
Expense
Help guide
Options
Logout


Create Expense Screen
Redgate
www.mywebsite.com
Logo
Username: xxx
Team Name: xxx
Remaining Bal: xxx
Expense
Help guide
Cancel
Submit

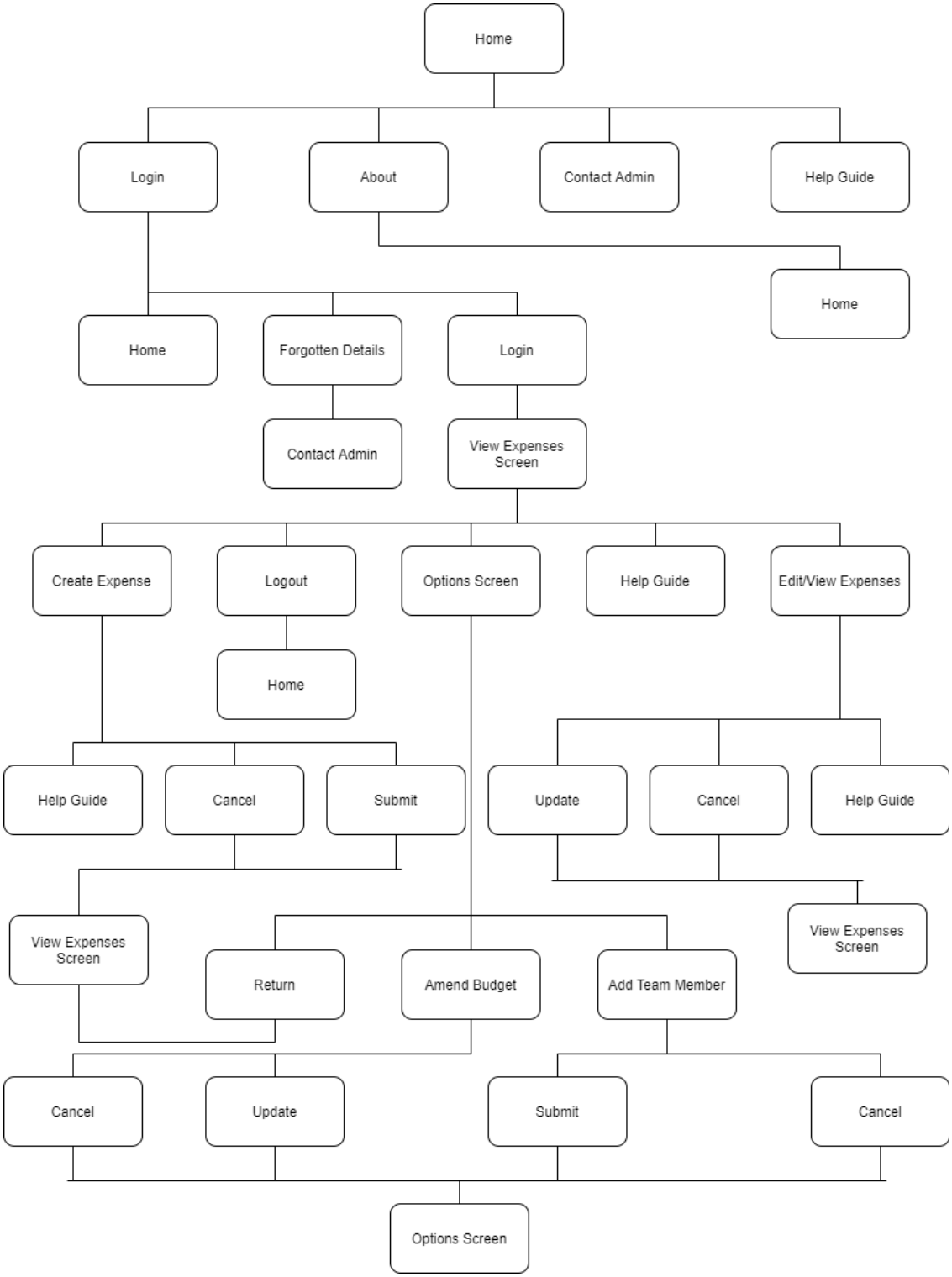

Edit Expense screen
Redgate
www.mywebsite.com
Logo
Username: xxx
Team Name: xxx
Remaining Bal: xxx
Expense
Help guide
Cancel
Update


Option Screen
Redgate
www.mywebsite.com
Logo
Username: xxx
Team Name: xxx
Add Team Member
Amend Budget
Return


Amend Budget Screen
Redgate
www.mywebsite.com
Logo
Username: xxx
Team Name: xxx
New Balance
Return
Cancel
Update


Add Team
Member Screen
Redgate
www.mywebsite.com
Logo
Username: xxx
Team Name: xxx
Email
Return
Cancel
Submit

3.4 Project Design Solutions - Navigation Maps



3.5 Project Design Solutions - Pseudocode

Process - Login

Input variables: username, password

Boolean variables: loginVerifier

Pseudocode

User gets a login page to login

Set username to blank //clears username

Set password to blank //clears password

Set loginVerifier to false

While(loginVerifier = false)

Output "Please fill in your username and password."

Get username from user

Get password from user

Compare input variables with database information

If (username and password variables match with database information)

Set loginVerifier to true //logged successfully

Else //the username or password don't match with any credential in the database

Set loginVerifier to false //repeat while loop

Output "Wrong username or password."

End if

End While

Create Expense

Input variables: expenseName, expenseValue

output variables: memberName, teamName, teamBudget, moneyDebt, budget

Pseudocode

Budget = budget allocated company wide / number of people in the company

TeamBudget = budget * number of people in a team

User gets a page to create a expense

Get memberName from database

Get teamName from database

Get teamBudget from database

Get moneyDebt from database

While(user doesn't exit)

Display variables information on screen to the user and asks the user to create an expense
//getting the user information from database and displaying it in the screen

Output "What do you want to create an expense for?"

Get expenseName from user

Output "How much budget do you need?"

//user will input how much budget he needs for the expense being created, if over team budget user will have a debt

Get expenseBudget from user

If(expenseBudget > teamBudget)

Output "You are exceeding your team budget, the difference will have to be payed from your own money!"

MoneyDebt = moneyDebt + (expenseBudget - teamBudget) // Money in debt saved in database

Else

teamBudget = teamBudget – expenseBudget //update team budget value in database

Save all information in database // time it was created, automated id, etc..

End if

End while

Process - View and Edit

Input variables: chosenExpense, chosenField, editBudget, budgetField, newMember

Output variables: memberName, teamName, teamBudget, moneyDebt, budget, teamMembers,

Pseudocode

```
Budget = budget allocated company wide / number of people in the company
TeamBudget = budget * number of people in a team
User gets a page to view all team expenses
Get memberName from database
Get teamName from database
Get teamBudget from database
Get moneyDebt from database
Get all expenses from database and displays them on screen in a list
// probably using DataViewGrid or a for moving from row to row, depends in which language used
User is able to view all details from each expense and select a expense to edit if he wishes to
Get chosenExpense from user
Display the chosenExpense information on screen
// user choses one or more fields of the chosen expense, the budget value for exemple
Get chosenField from user
//In this scenario the user can edit everything to whatever he wants to execpt the expense ID which
he can´t edit and the date it was created

Case based on chosenField
    Case budgetField:
        //But when going over the team budget when updating the budget needed for the
        expense you need to update the team debt
        Output "Input the new budget needed for this expense?"
        Get editBudget from user
        If( editBudget > teamBudget )
            Output "You are exceeding your team budget, the difference will have to be
        payed      from your own money!"
            MoneyDebt = moneyDebt + (editBudget – teamBudget) // Money in debt
        saved in database
        Else
            teamBudget = teamBudget – editBudget //update team budget value in
                database
            Save all new expense information in database
        End If
    Case membersField:
        //The user can also add members to its team, therefore the team budget will go up
        Get teamMembers from database
        Display current team members on screen
        Output "how many member do you want to add?"
        Get newMember from user
        TeamBudget = teamBudget + (budget * newMember)
End case
```

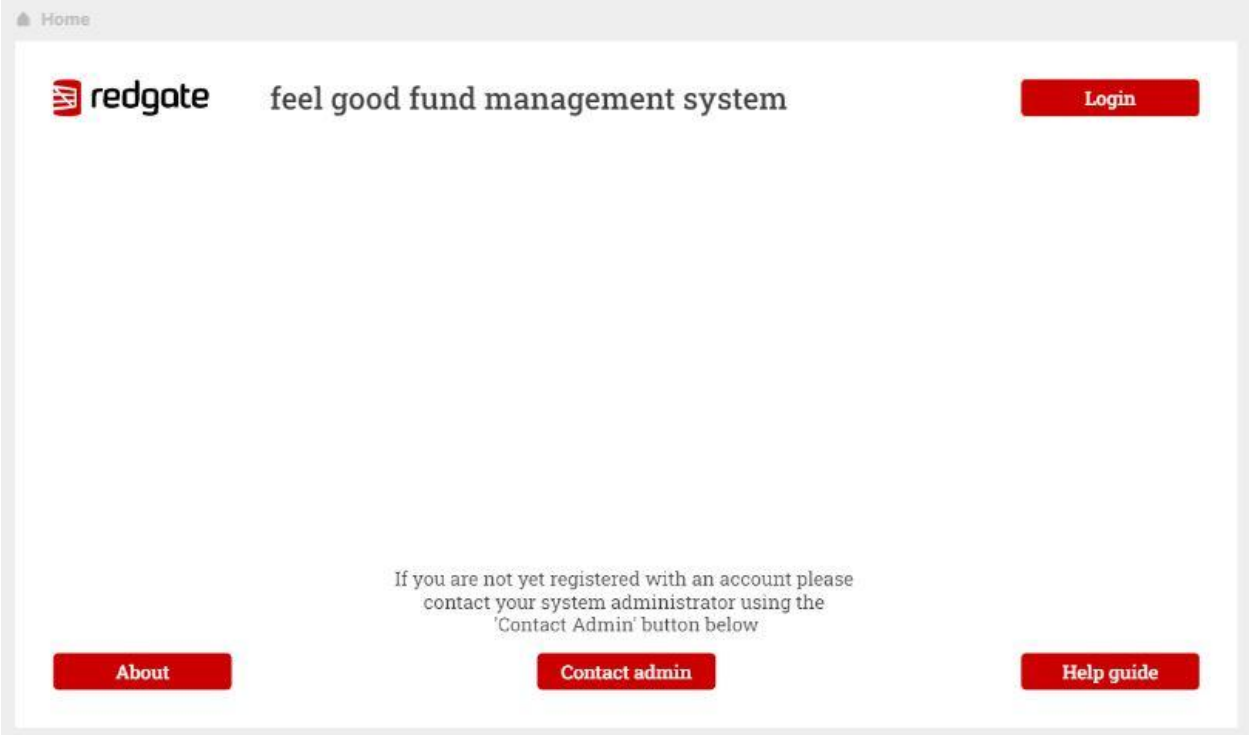
3.6 Project Design Solutions - Truth Tables

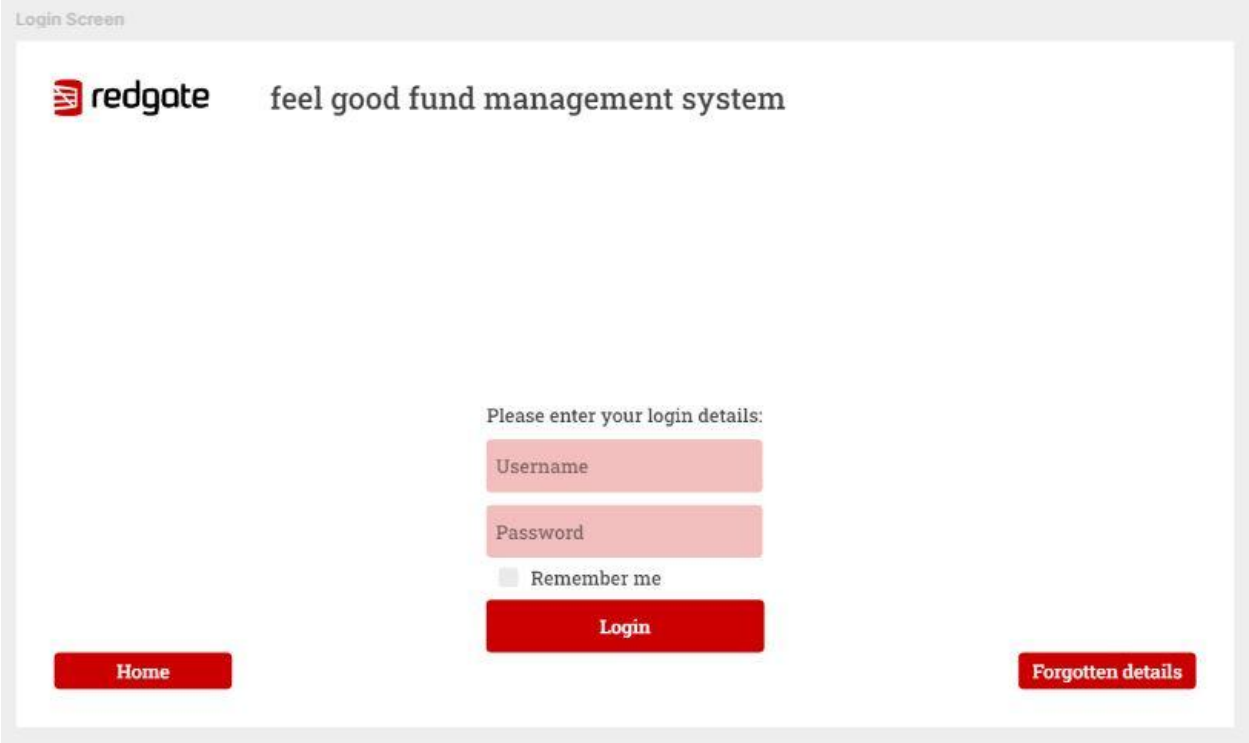
Truth tables for creating a expense

	teamBudget	expenseBudget	moneyDebt	Output
TeamBudget = 100	100			
EditBudget = 150	100	150		
If teamBudget < expenseBudget	100	150		
MoneyDebt = moneyDebt + (expenseBudget - teamBudget)	100	150	50	50
else				
TeamBudget = teamBudget - expenseBudget				
End if				

	teamBudget	expenseBudget	moneyDebt	Output
TeamBudget = 100	100			
ExpenseBudget = 50	100	50		
If teamBudget < expenseBudget	100	50		
MoneyDebt = moneyDebt + (expenseBudget - teamBudget)				
else	100	50	0	
TeamBudget = teamBudget - expenseBudget	50	50	0	50
End if	50	50	0	

3.7 Project Design Solutions - Prototype of Design





Team Member Logged In Screen

redgate feel good fund management system

Username: xxxxx
Team name: xxxxx

Enter expense

Remaining Team Balance: £xxxxx.xx

Expense reference:	Date submitted:	Amount:	Submitted by:	Status:
xxxxx	dd/mm/yyyy	£xxxx.xx	xxxxxx	xxxxxx
xxxxx	dd/mm/yyyy	£xxxx.xx	xxxxxx	xxxxxx
xxxxx	dd/mm/yyyy	£xxxx.xx	xxxxxx	xxxxxx
xxxxx	dd/mm/yyyy	£xxxx.xx	xxxxxx	xxxxxx
xxxxx	dd/mm/yyyy	£xxxx.xx	xxxxxx	xxxxxx
xxxxx	dd/mm/yyyy	£xxxx.xx	xxxxxx	xxxxxx

Help guide Options Log out

Create Expense Screen

redgate feel good fund management system

Username: xxxxx
Team name: xxxxx

Remaining Team Balance: £xxxxx.xx

Expense amount: £xxxx.xx

Date of expense: dd/mm/yyyy

Expense type: Meal

Allocate approval to: Manager 1

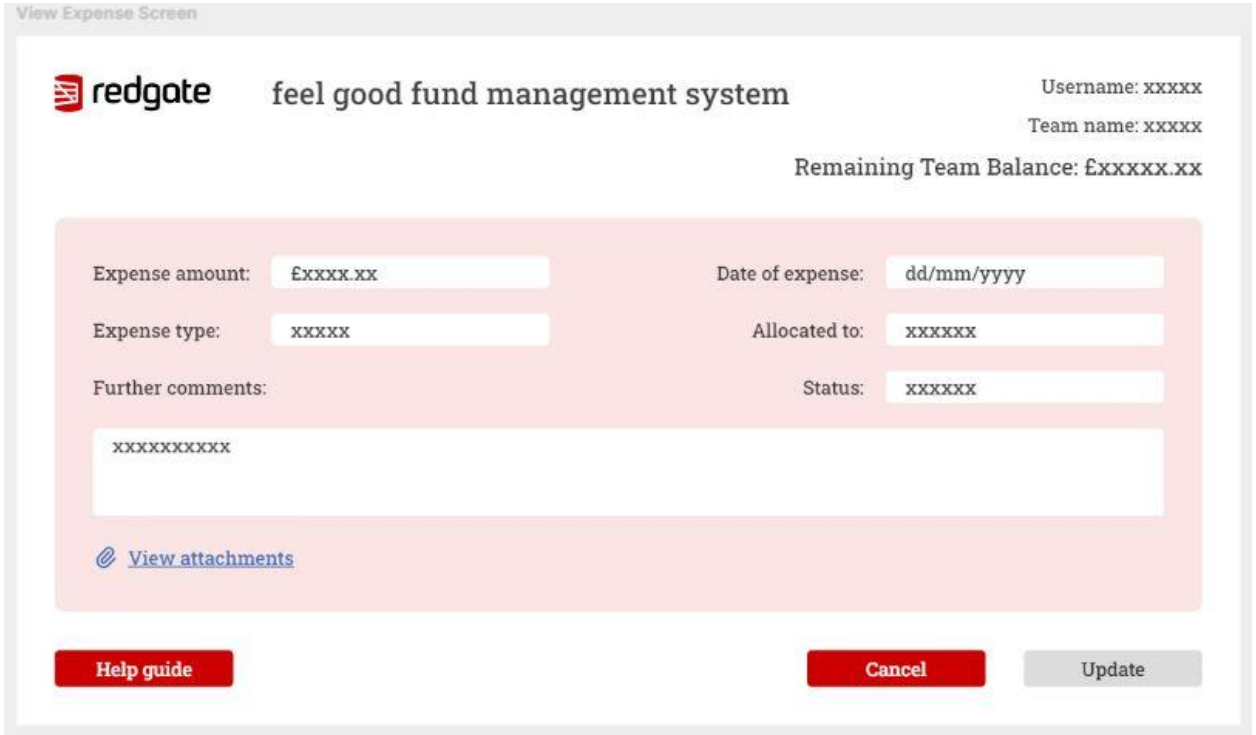
Further comments:

Comments...

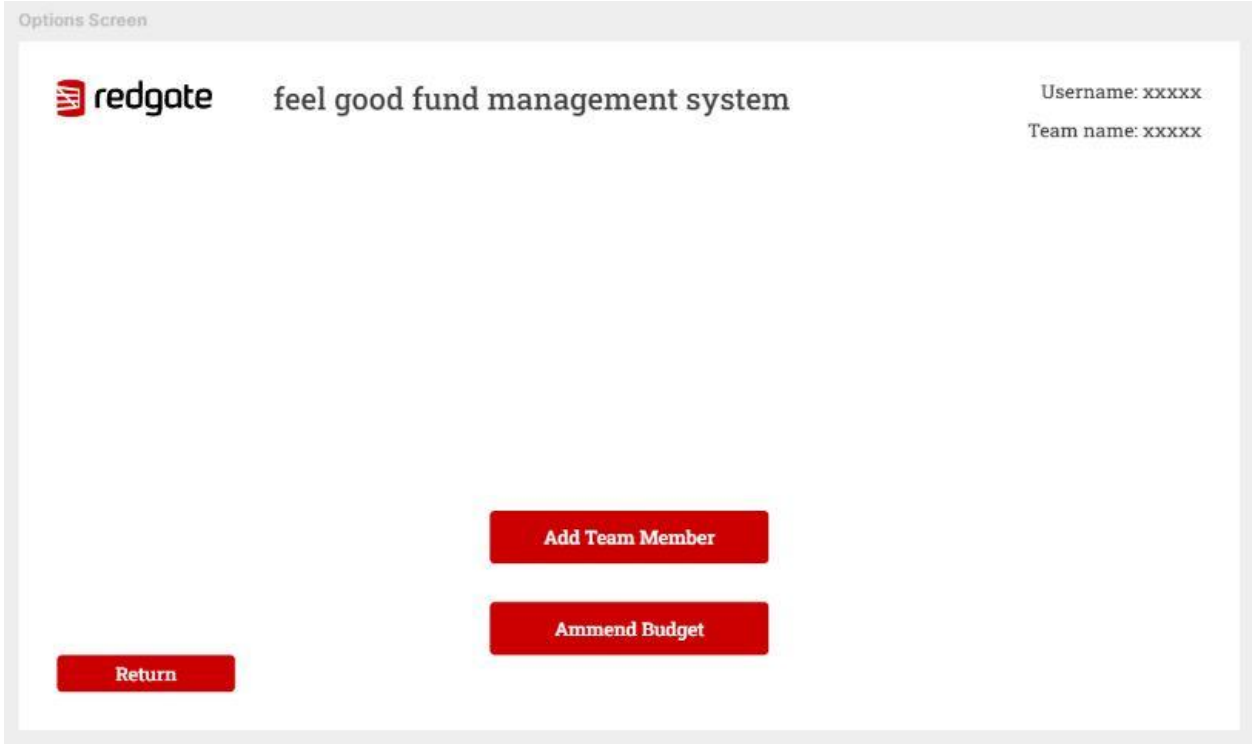
Add attachments

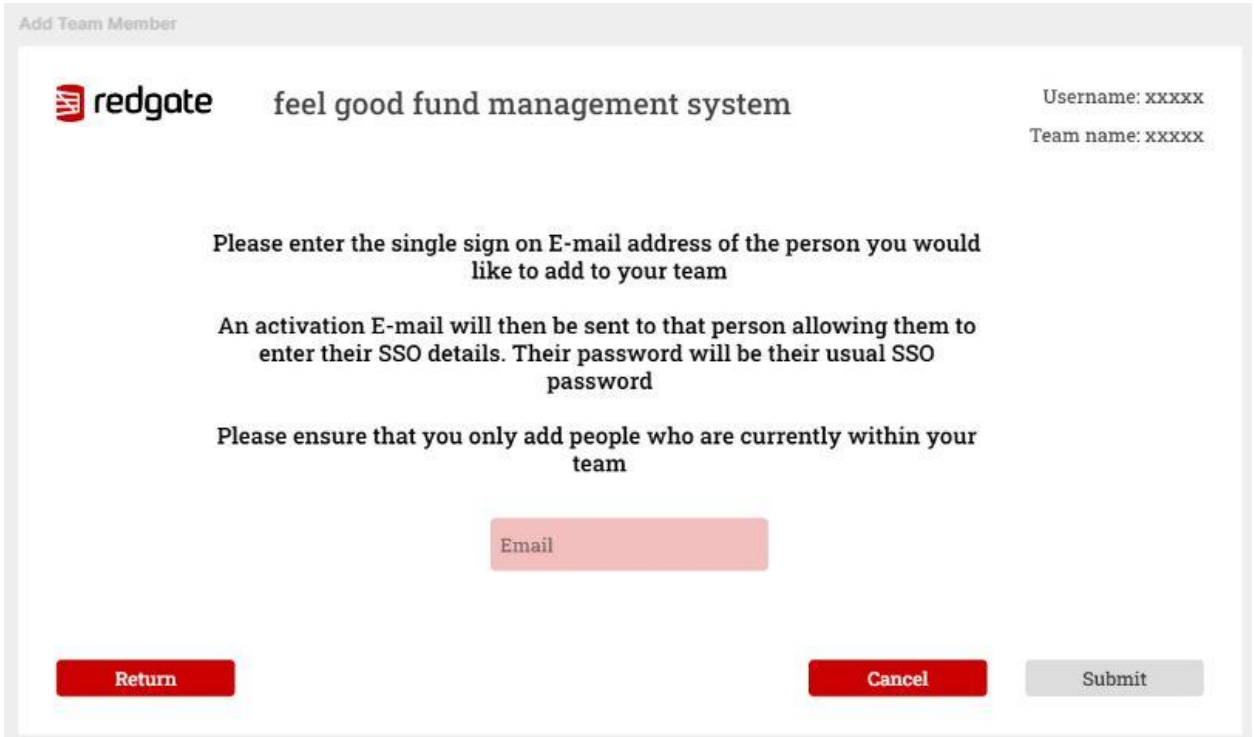
Help guide Cancel Submit

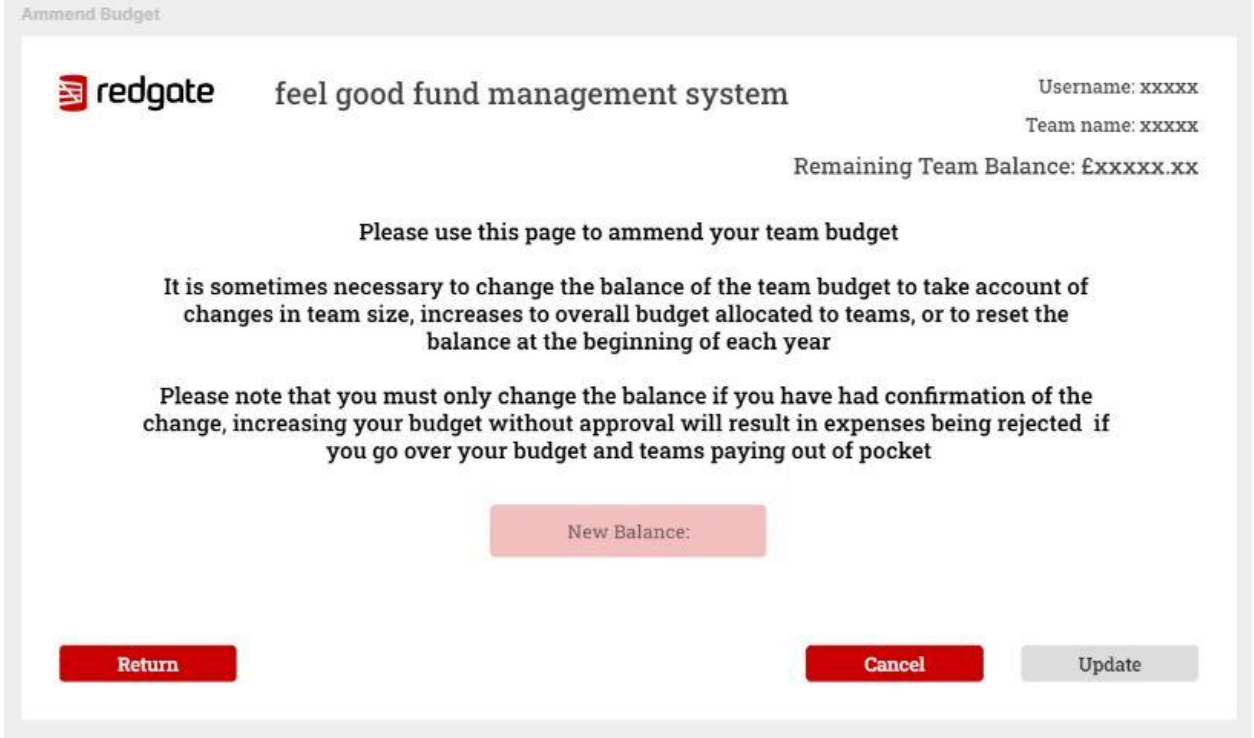
View Expense Screen

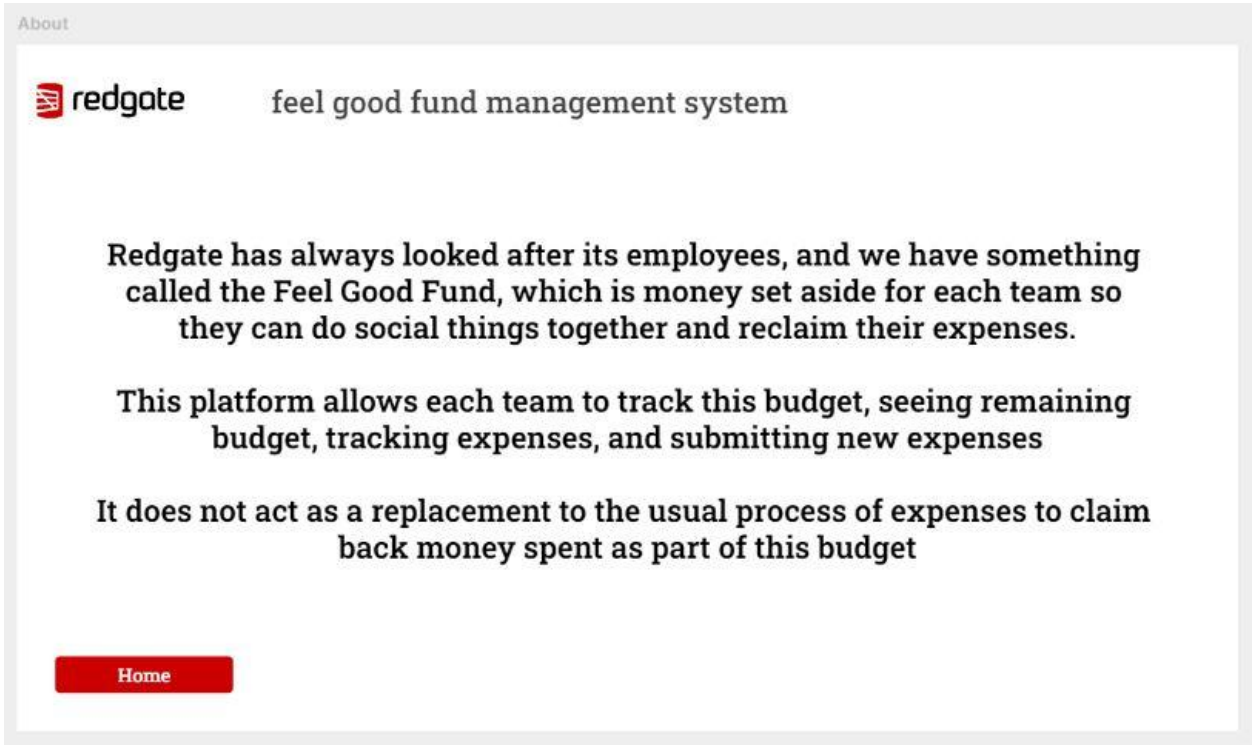


Options Screen




Add Team Member
redgate
feel good fund management system
Username: xxxxx
Team name: xxxxx
Please enter the single sign on E-mail address of the person you would like to add to your team
An activation E-mail will then be sent to that person allowing them to enter their SSO details. Their password will be their usual SSO password
Please ensure that you only add people who are currently within your team
Email
Return
Cancel
Submit


Ammend Budget
redgate
feel good fund management system
Username: xxxxx
Team name: xxxxx
Remaining Team Balance: £xxxxx.xx
Please use this page to ammend your team budget
It is sometimes necessary to change the balance of the team budget to take account of changes in team size, increases to overall budget allocated to teams, or to reset the balance at the beginning of each year
Please note that you must only change the balance if you have had confirmation of the change, increasing your budget without approval will result in expenses being rejected if you go over your budget and teams paying out of pocket
New Balance:
Return
Cancel
Update


About
redgate
feel good fund management system
Redgate has always looked after its employees, and we have something called the Feel Good Fund, which is money set aside for each team so they can do social things together and reclaim their expenses.
This platform allows each team to track this budget, seeing remaining budget, tracking expenses, and submitting new expenses
It does not act as a replacement to the usual process of expenses to claim back money spent as part of this budget
Home

4. Evaluation

We have worked well as a group on this project and everyone has contributed valuable work.The Redgate live brief object was to “Encourage critical thinking, attention to detail and question asking. [...] understand there is more to software development than coding.”

I believe we have met each of these objectives by thinking critically about the brief and what we needed to produce, we started off by making assumptions about the project. We asked thorough and relevant questions in the Q&A sessions and decided our assumptions were wrong and went back and re-worked our project. We also spoke at length about the logic of the website and how everything should work before completing the majority of the task.

This approach has led us to create a design for the system which we are all proud of and believe meets the brief quite comprehensively.

Beyond this, we have really considered the user experience and how and why people will be using our design solution. To this we have created a system that is intuitive and simple to use. I think most people would be able to understand the point of our solution and be able to use it without any level of training on it.

5. References

We did not reference any external resources while completing this project.