



Design Specification

ReadySetResource.com

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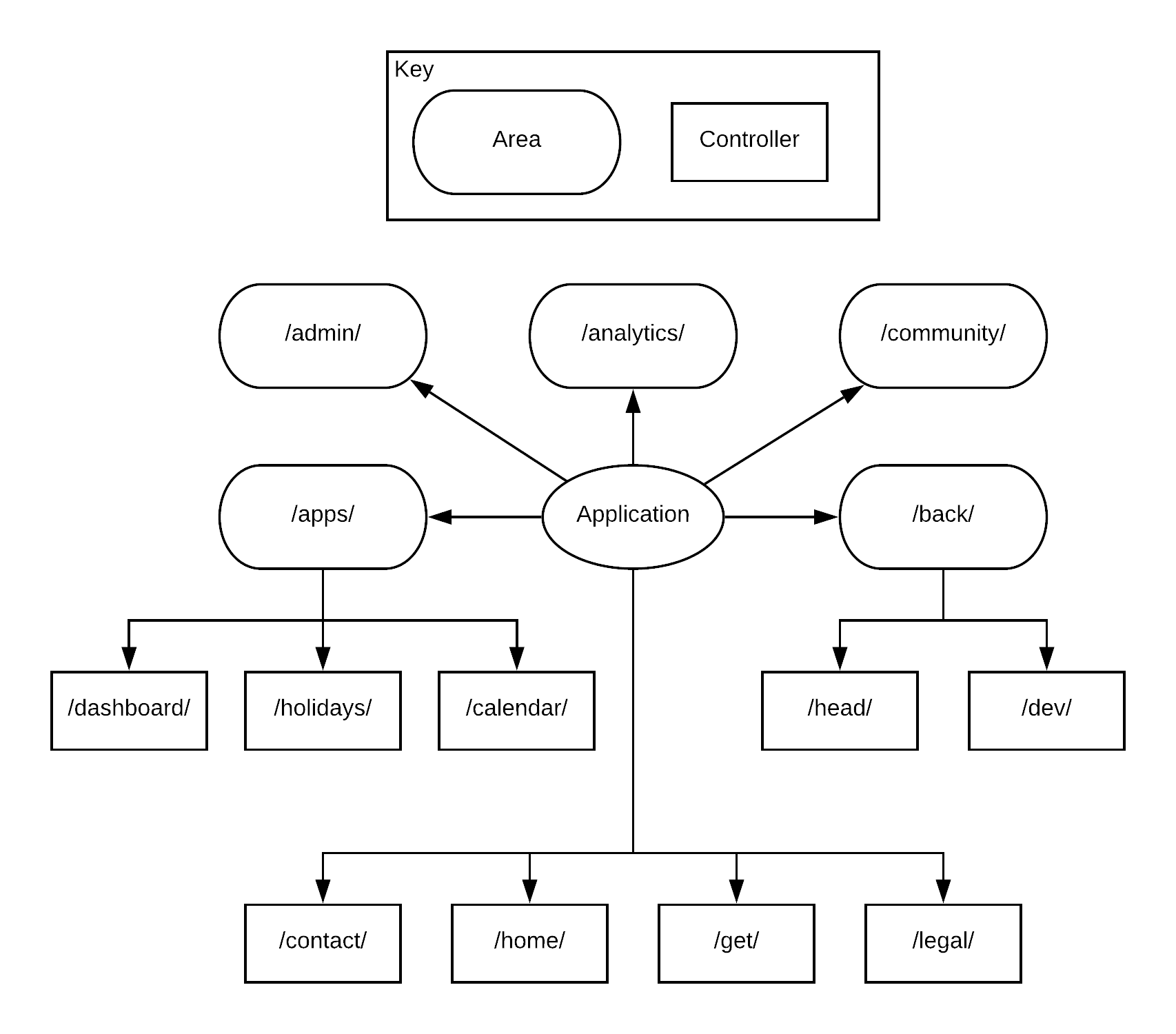
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# 5.1 - Data Flow Diagrams

The data flow diagrams are out with the scope of this project.

# 5.2 - System Architecture



# 5.3 - Use Case Descriptions

Initial Use Case Description - Creating a Shift

1. Request booking of a shift
2. Check to see if user type can make shifts
3. Prompt the user for day of shift
4. Input day of shift
5. Check for availability for day
6. Prompt the user for start time of shift
7. Input start time of shift
8. Check for availability for start time
9. Prompt the user for end time of shift
10. Input end time of shift
11. Check for availability for end time
12. Accept shift
13. Update system

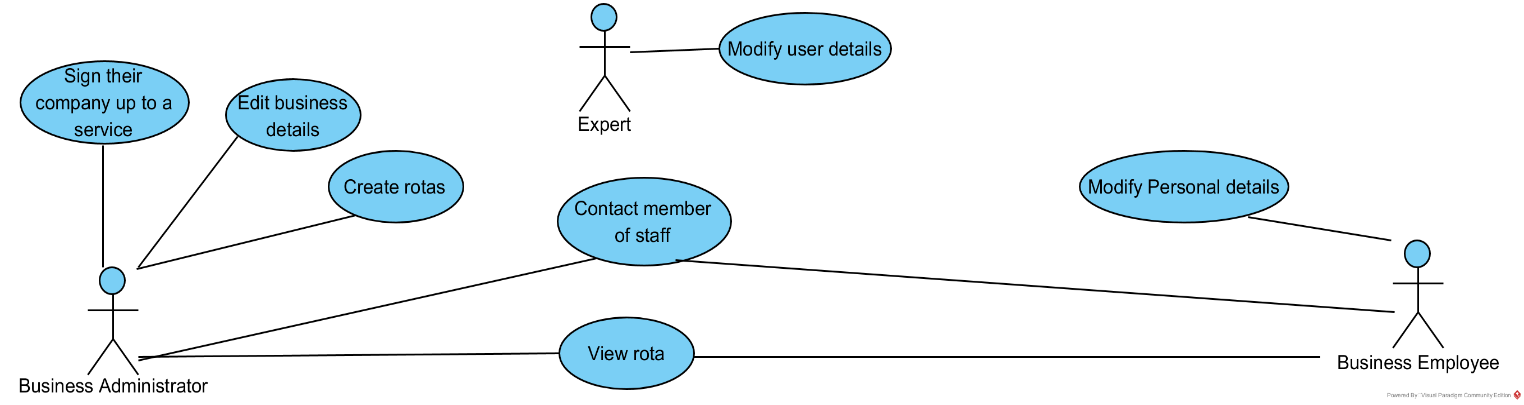
Extended Use Case Description

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID | 01 | | |
| Use Case Name | Create A Shift | | |
| Created By | Aidan Marshall | Latest Updated By | Aidan Marshall |
| Date Created | 17/5/18 | Date Last Updated | 17/5/18 |

|  |  |
| --- | --- |
| Actor(s) | User, System |
| Description | The user creates a shift for a user |
| Trigger | The user clicks ‘Add Shift’ in the calendar view |
| Preconditions | The user is signed in  The user has editing rights for calendar |
| Postconditions | Shift is successfully created |
| Priority | High |
| Frequency of use | On demand |
| Normal Course of Events | 1. User requests booking of a shift 2. System checks to see if user type can make shifts 3. System prompts the user for day of shift 4. User inputs day of shift 5. System checks for availability for day 6. System prompts the user for start time of shift 7. User inputs start time of shift 8. System checks for availability for start time 9. System prompts the user for end time of shift 10. User inputs end time of shift 11. System checks for availability for end time 12. System accepts shift 13. System is updated |
|  | 1. User does not have editing rights    1. User is redirected    2. Process is terminated 2. The chosen date is not available    1. System offers to change date       1. User cancels       2. User is redirected    2. User chooses an alternative date    3. Continue to step 6   8. The chosen start time is not available   1. System offers to change start time    * 1. User cancels      2. User is redirected 2. User chooses an alternative start time 3. Continue to step 9   11. The chosen end time is not available   1. System offers to change end time    * 1. User cancels      2. User is redirected 2. User chooses an alternative end time 3. Continue to step 12 |
| Expectations | The user will be able to make a shift |
| Includes | Includes the register membership |
| Special Requirements | The user’s type allows for editing of the calendar |
| Assumptions |  |
| Notes |  |
| Issues | None to date |

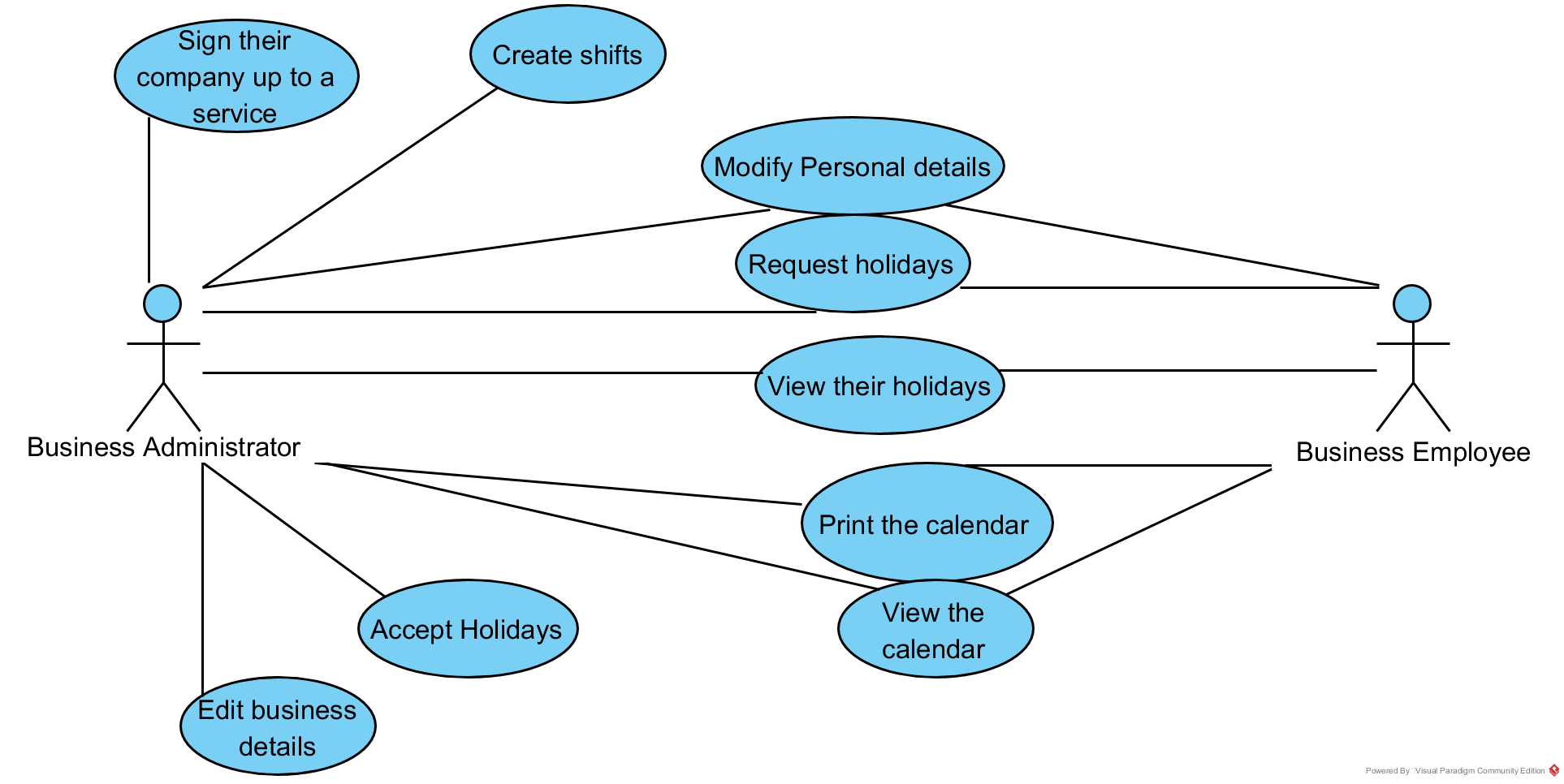
# 5.4 - Use Case Diagrams

Initial Use Case Diagram - V1

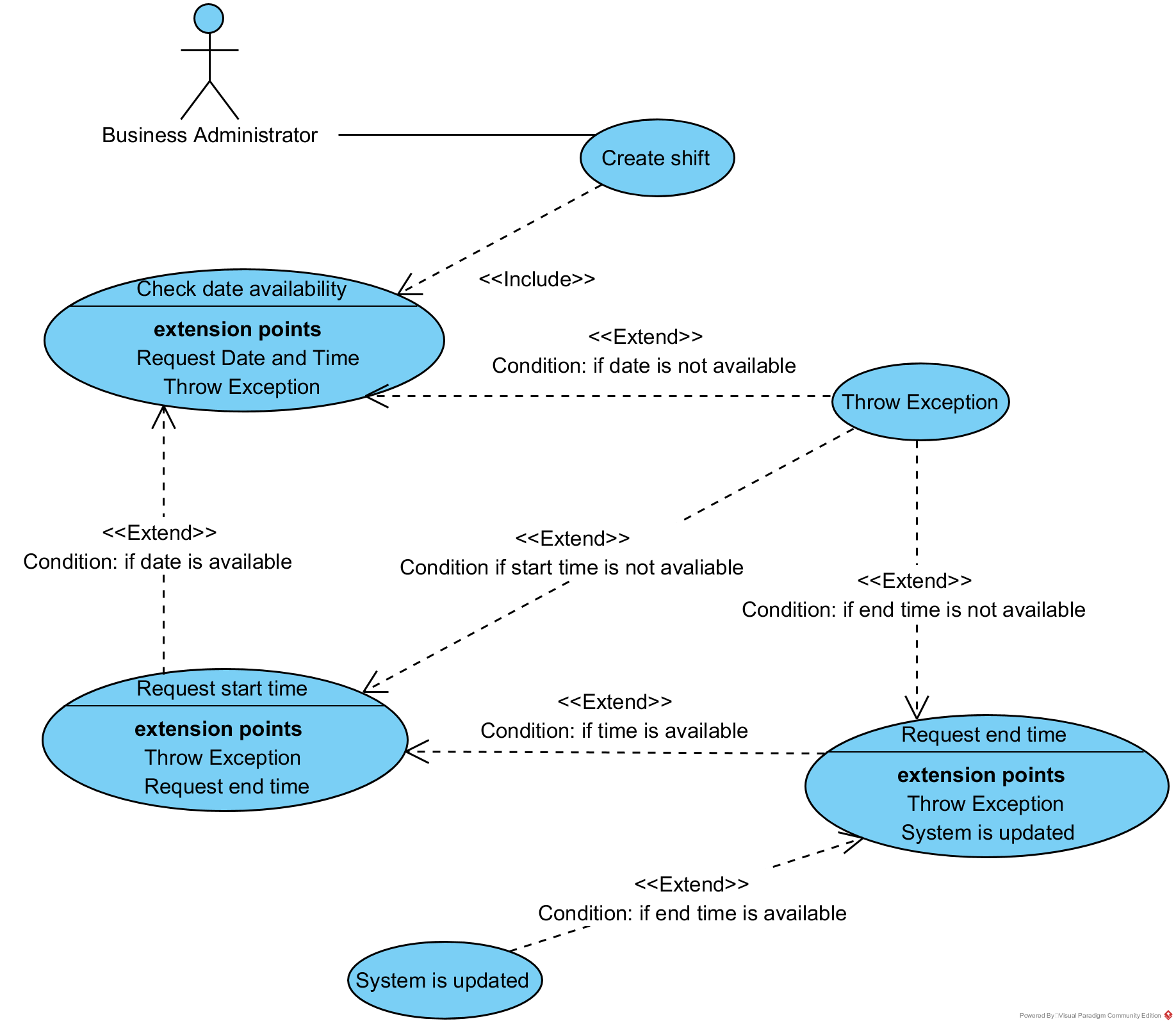


Initial Use Case Diagram - V2

Note: Graham introduced the idea of including the updating of the rota and production of reports. Due to this and a modification in system functionality, below is the revisited Initial Use Case Diagram. Rota has been changed to calendar as it was causing confusion with staff members and experts were removed as both the administrator of a business and the employee of a business are able to edit their details.

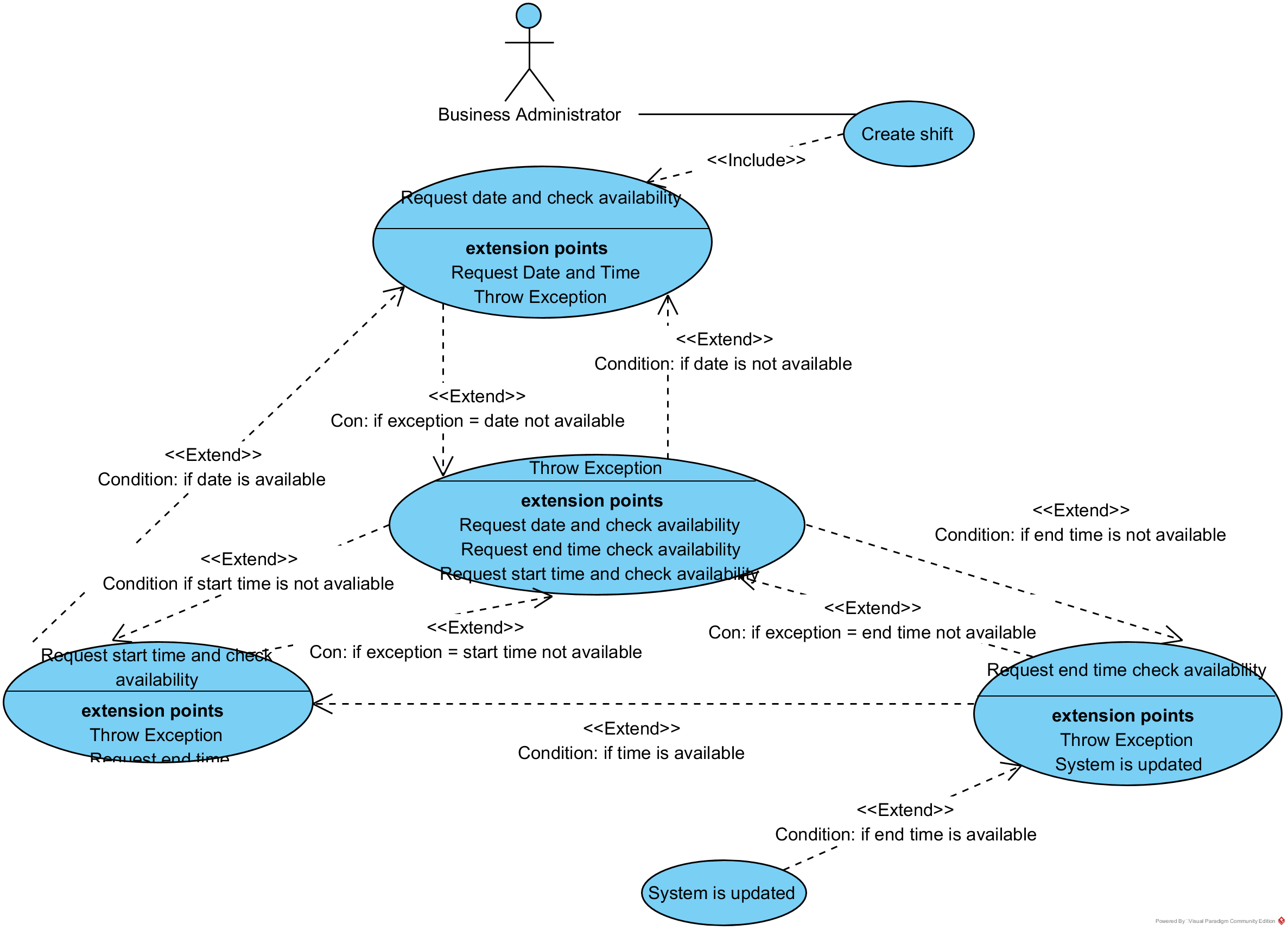


Extended Use Case Diagram - V1



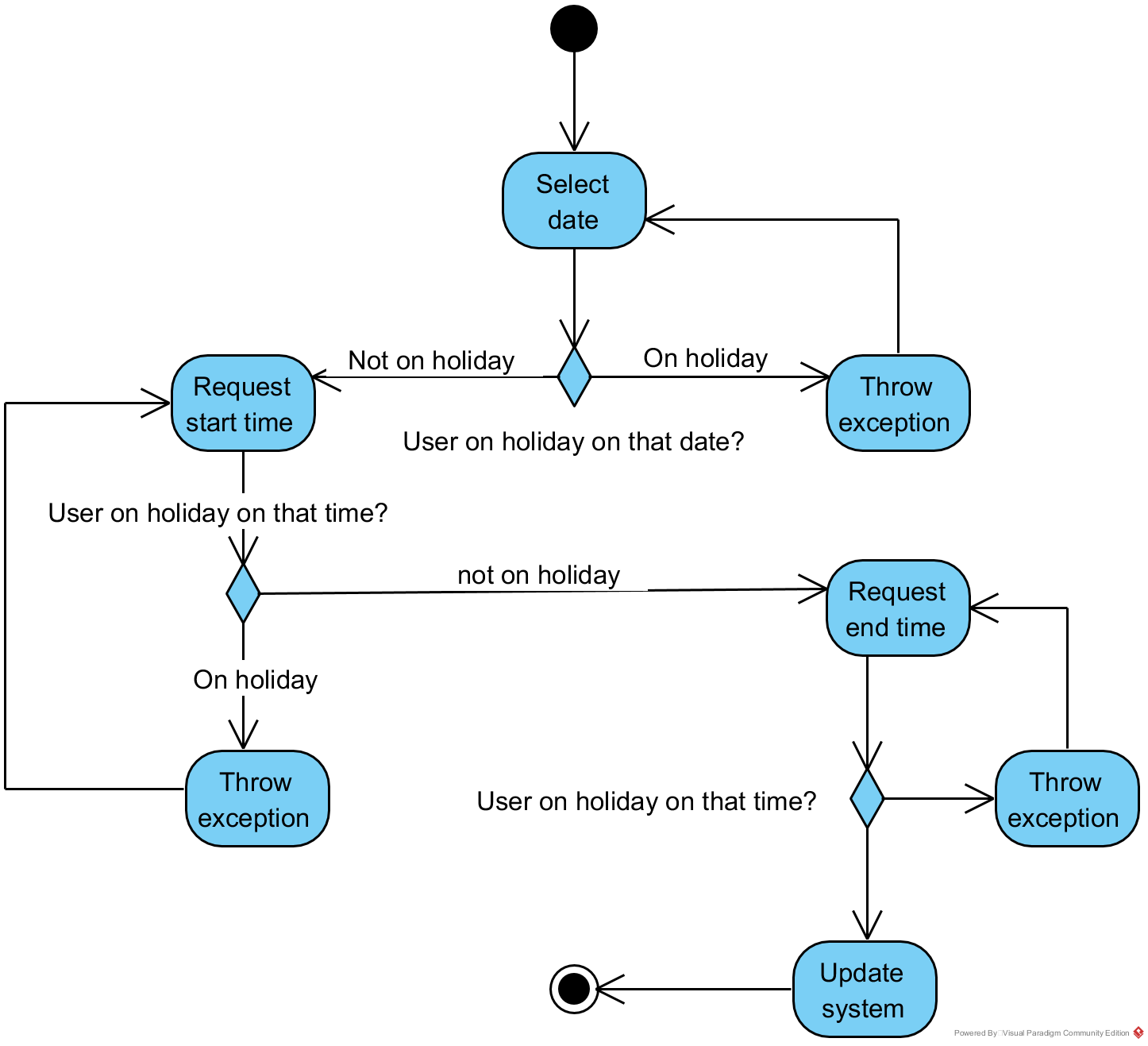
Extended Use Case Diagram - V2

Note: After discussions with Graham, it was pointed out to myself that nothing occurs after the exception is handled, also that the shift was being created and then the date was being checked, but there is nowhere to add a date in. Thus, I have made the appropriate changes displayed below. When an exception is thrown, the user needs to return to the previous step and try again.

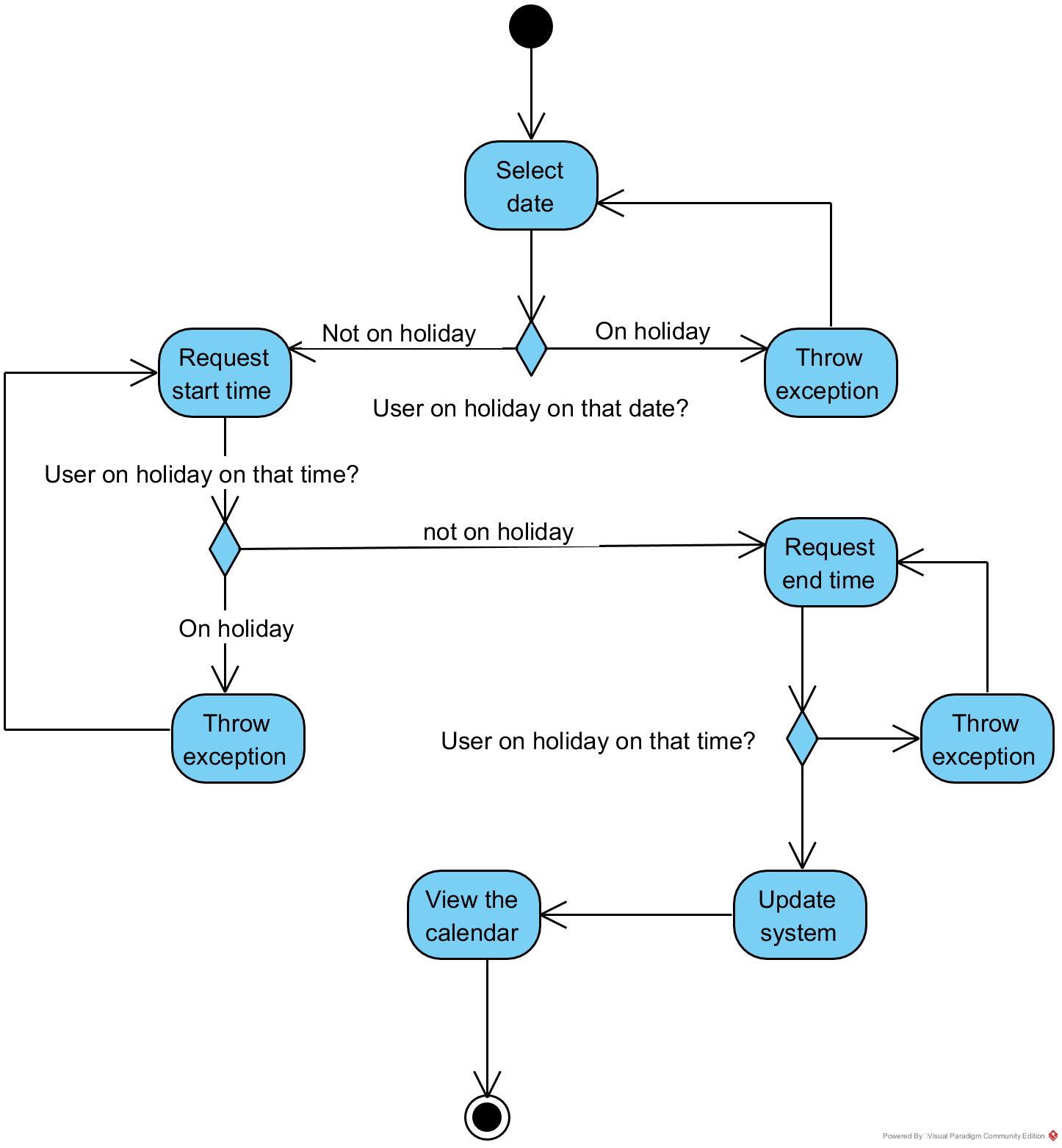


# 5.5 - Activity Diagram

Activity Diagram - V1



Activity Diagram - V2

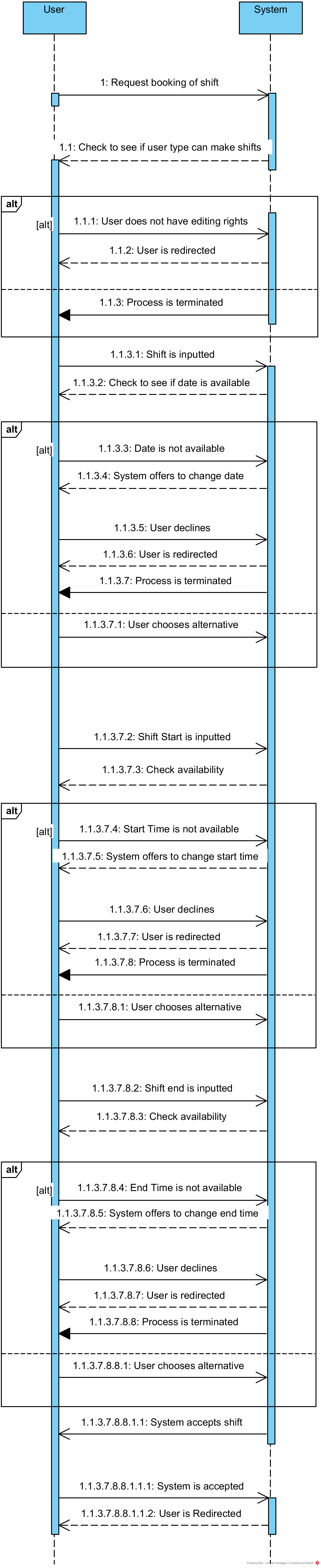
Note: Upon receiving feedback from Graham, it was pointed out to myself that nothing occurs after the system is updated and what should happen is the user is redirected to the calendar where the user can view their shifts, their co-workers’ shifts, add a shift (if the type they are assigned to allows) and print the calendar. Below is the activity diagram with the redirect added.

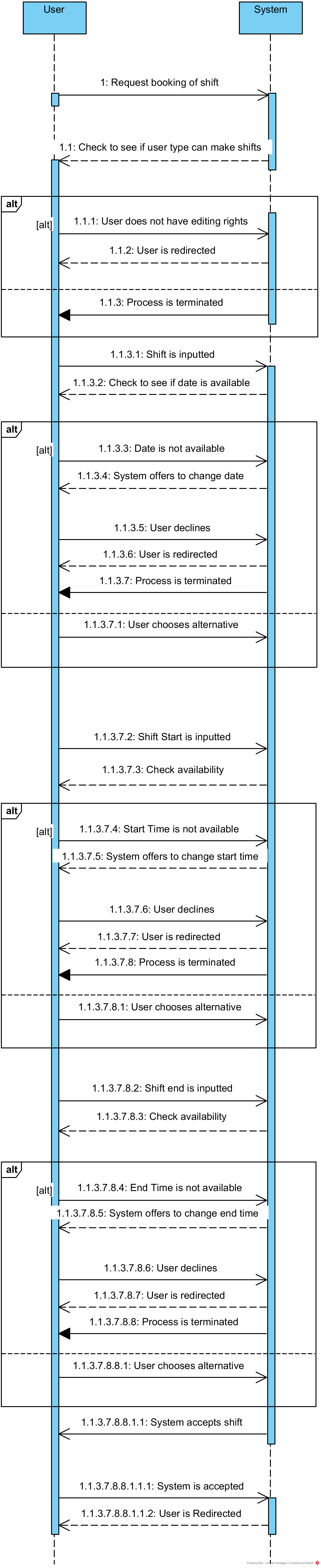
Note: The algorithm used in my calendar was by far my biggest challenge in the project and seems non-sensical at times. In my evaluation report I will discuss the difficulties I had to overcome, the errors that I made and how I can improve myself moving forward based on the experience.

# 5.6 - Class Diagram

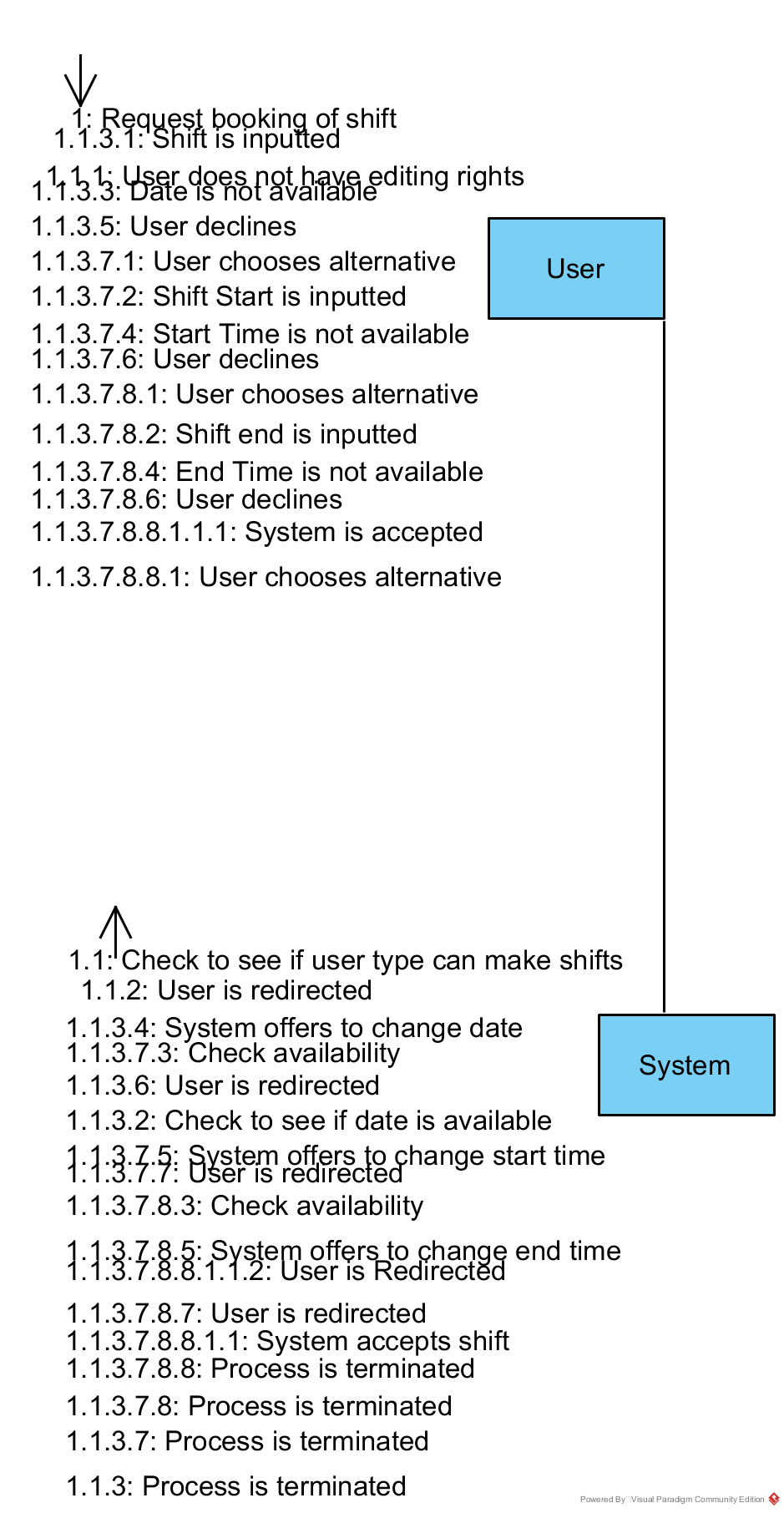
Note: Above is my completed class diagram, this will allow me to create the following ‘apps’ within the program: Calendar, Holidays, Meetings, Messages, Employee Store, Ideas, Updates. In addition, it would allow for business to be charged (Transactions) and a community section for questions and answers that the users can discuss in. Looking back, although I will implement this functionality in the future, I understand that I was being over-ambitious in the timescale provided.

# 5.7 - Sequence and Communications Diagrams

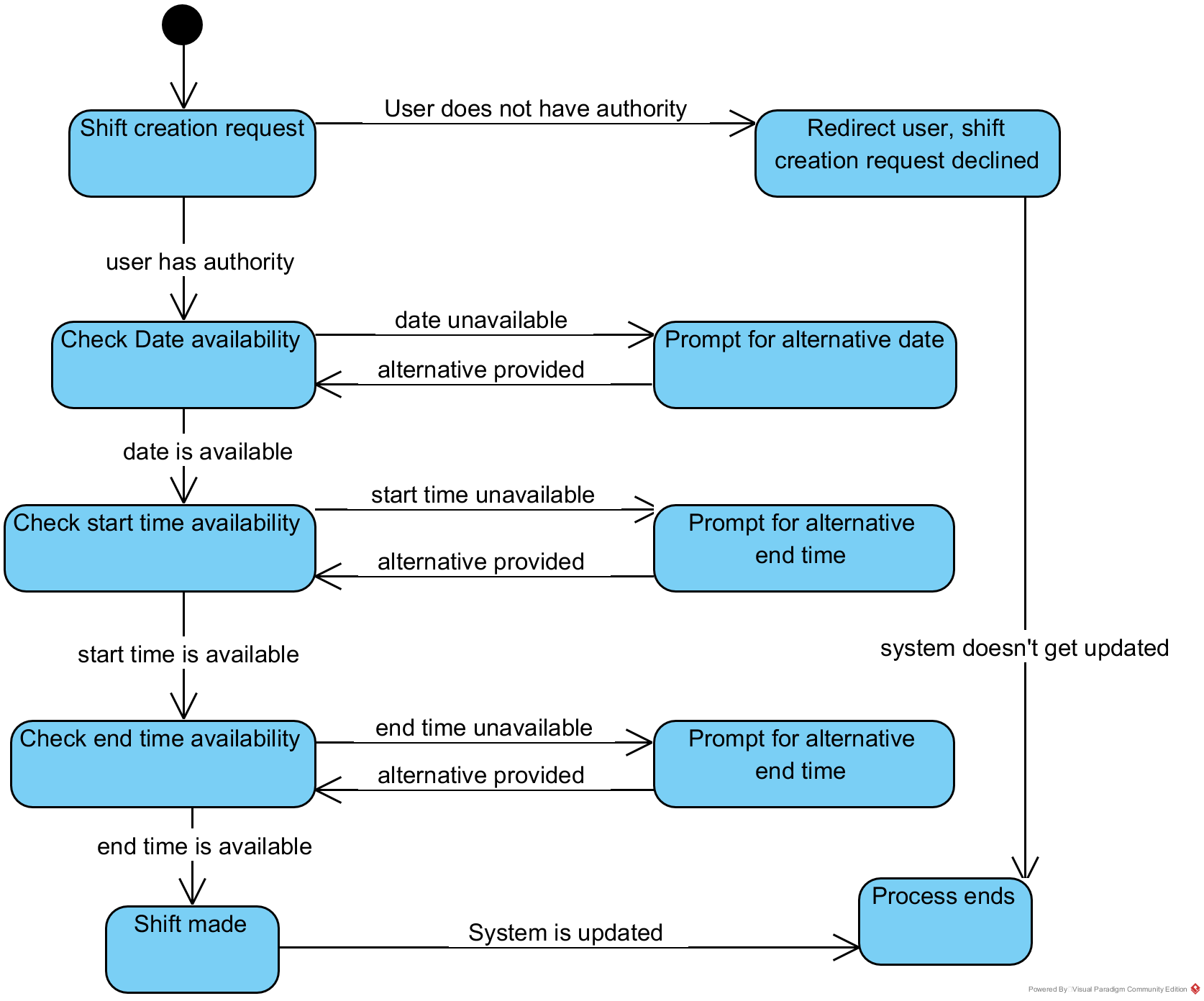
Sequence Diagram - V1

b

Communications Diagram - V1



# 5.8 - State Diagrams

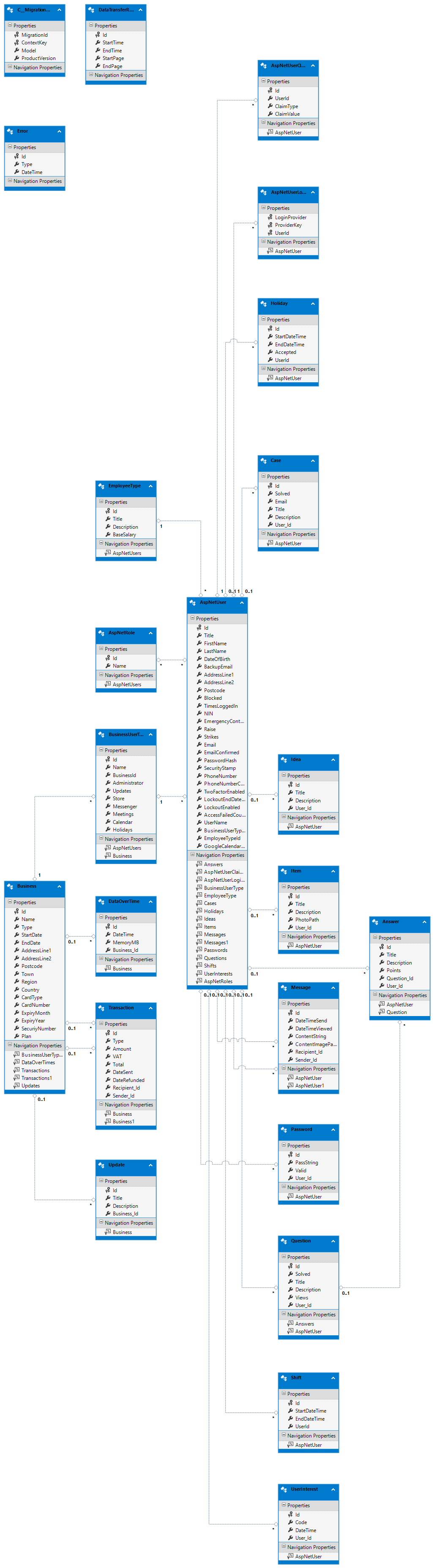


# 5.9 - Normalisation

| UNF | 1NF | 2NF | 3NF |
| --- | --- | --- | --- |
| Order Id | Order Id | Order Id | Order Id |
| Order Date | Order Date | Order Date | Order Date |
| Staff Name | Staff Name | Staff Name | Staff Id\* |
| Staff Id | Staff Id | Staff Id | Customer Id\* |
| Customer Id | Customer Id | Customer Id | Quantity |
| Customer Name | Customer Name | Customer Name |  |
| Street | Street | Street |  |
| Town | Town | Town | Staff Id |
| Postcode | Postcode | Postcode | Staff Name |
| Customer Phone Number | Customer Phone Number | Customer Phone Number |  |
| Product Id |  |  | Customer Id |
| Product Name | Order Id | Order Id | Customer Name |
| Quantity | Product Id | Product Id | Street |
| Product Price | Product Name | Order Total | Town |
| Order Total | Quantity |  | Postcode |
|  | Product Price | Product Id | Customer Phone Number |
|  | Order Total | Product Name |  |
|  |  | Quantity | Product Id |
|  |  | Product Price | Product Name |
|  |  |  | Product Price |
|  |  |  |  |
|  |  |  | Order Id |
|  |  |  | Product Id |
|  |  |  | Order Total |

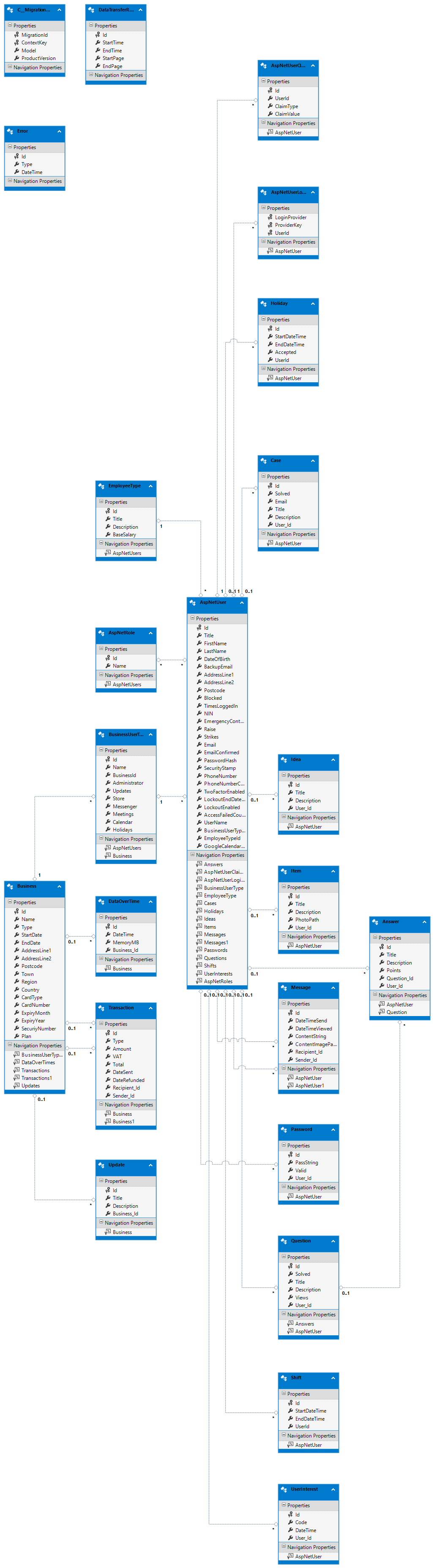
# 5.10 - Data Model

The data model is the updated and final entity-relationship diagram.



# 

# C:\Users\Aidan Marshall\Documents\Projects\ReadySetResource\Design\Diagrams\Updated ERD.png

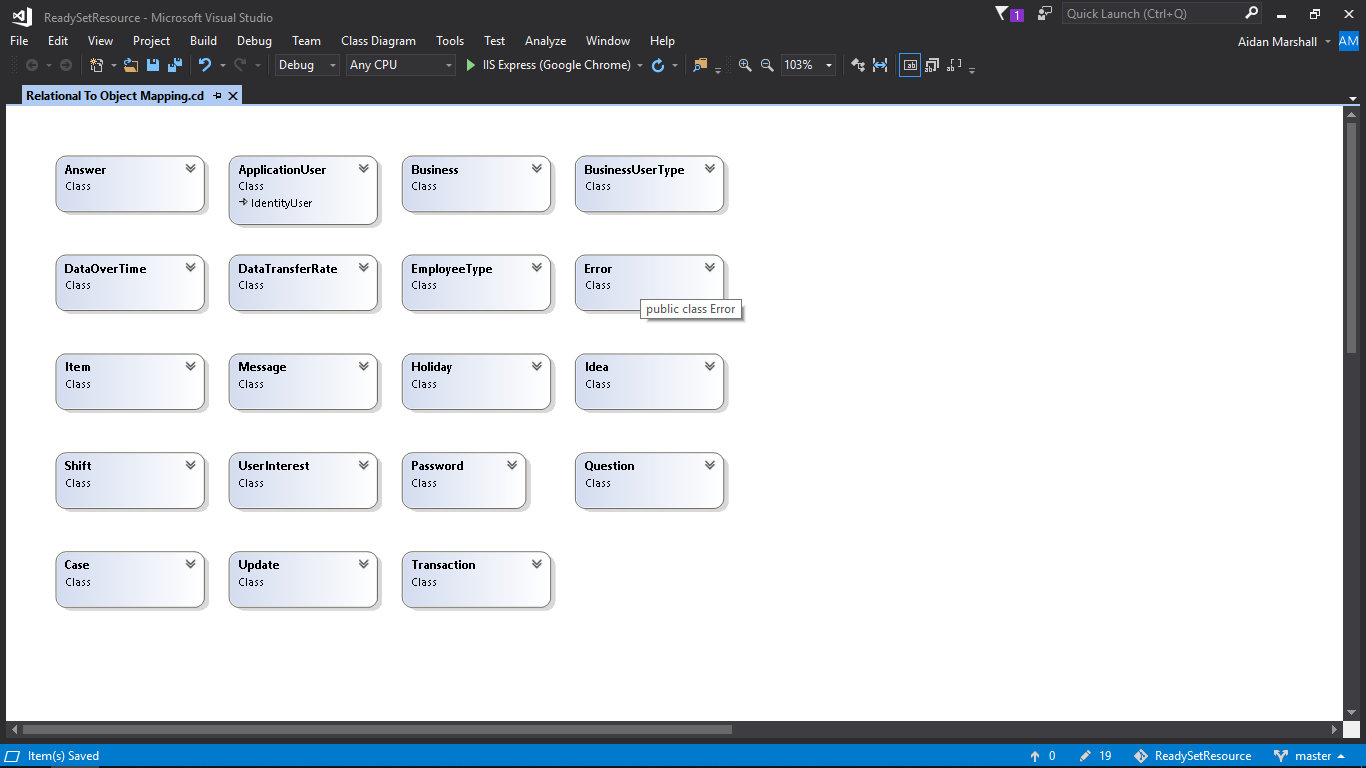


# 5.11 - Form Layouts

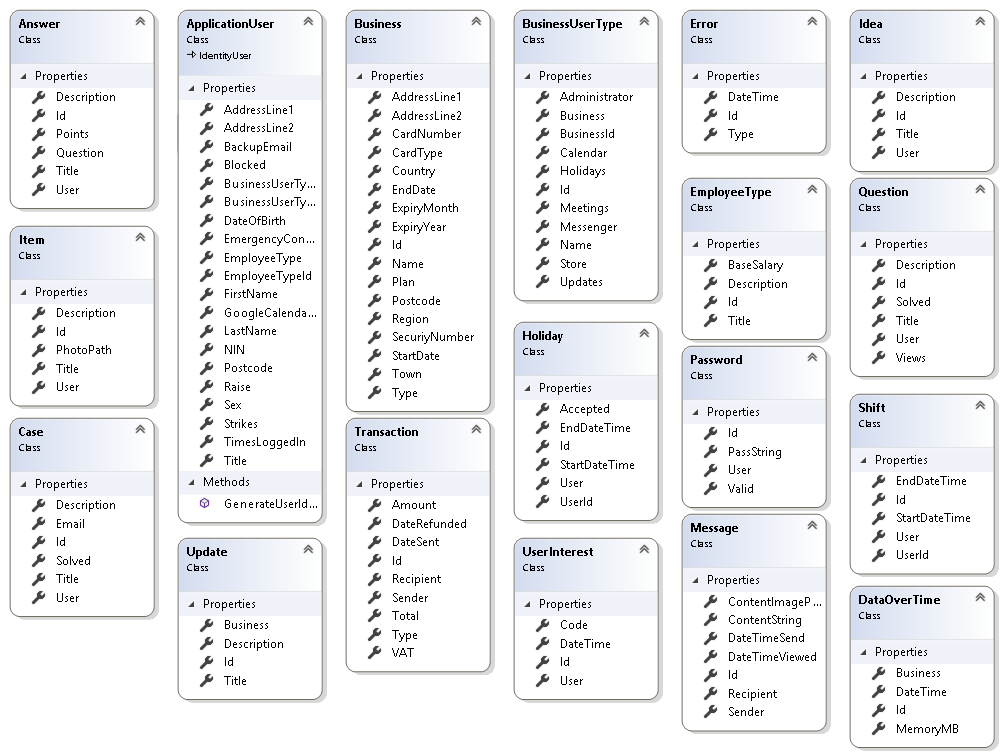
To see the form layouts, please see the sandcastle documentation and the folder called ‘Initial Screen and Form Layouts’ in the current folder.

# 5.12 - Object-Relational Mapping

This diagram shows the updated class diagram without their properties:



This diagram shows the updated class diagram with their respective properties:



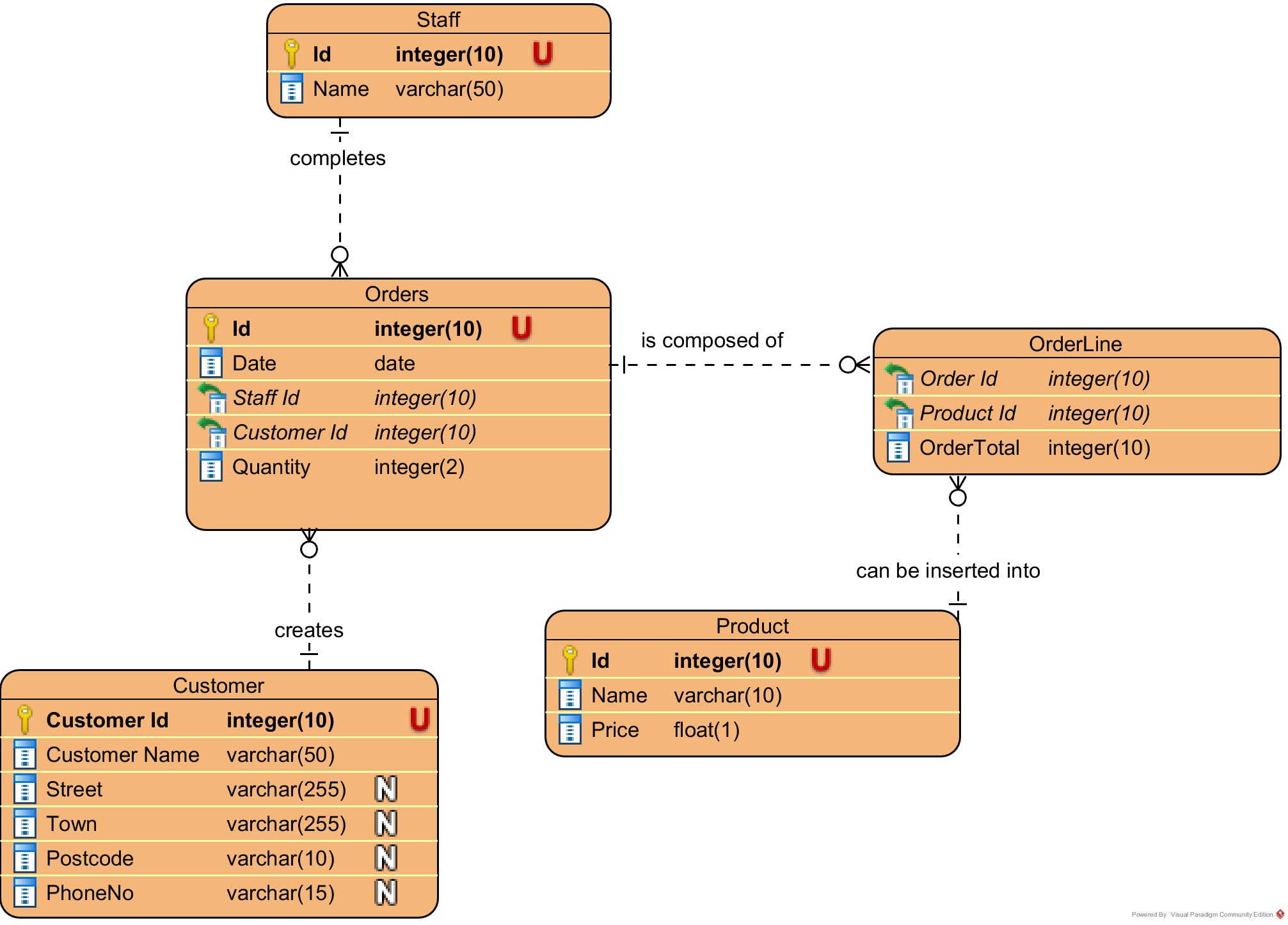
# 5.13 - Class Definition Document

To see the class definition document, please view the sandcastle project called ‘RSR Sandcastle Project’ located in this document.

# 5.14 - Data Dictionary

To see the Data Dictionary, please go to 5.20 - Identifier Lists

# 5.15 - Initial Entity Relationship Diagram



Note: Over the course of a few days, I planned ways in which I could add to this ERD to create the program that I designed. I merged the customer and staff to create ‘user’, then I was going to change the orders, order line and product tables to calendars, calendar lines and shifts respectively, but I decided that was overcomplicated and it is derivable data as you can get the calendar from the date which is an attribute in each shift. After that I added tables and attributes which you can see in the next diagram.

# 5.16 - Extended Entity Relationship Diagram



# 5.17 - Screen Layouts

To see the initial screen layouts, please view the folder ‘Initial Screen and Form Layouts’. To view the updated and final screen layouts, please view the folder ‘Updated Screen Layouts’ in the same folder.

# 5.18 - Validation Control Forms

The validation control forms are generated by sandcastle. To view them, please open the documentation in the ‘RSR Sandcastle Project’.

# 5.19 - Event-Handling Forms

The event handling forms are generated by sandcastle. To view them, please open the documentation in the ‘RSR Sandcastle Project’.

# 5.20 - Identifier List

Users

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for users |
| Title | Global | Bit - Used to store the title of the user |
| FirstName | Global | Varchar(20) - Used to store the first name of the user |
| LastName | Global | Varchar(20) - Used to store the last name of the user |
| DateOfBirth | Global | Date - Used to store the birthday of the user |
| Email | Global | Varchar(60) - Used to store the email of the user |
| BUEmail | Global | Varchar(60) - Used to store the backup email of the user |
| ProfilePicLink | Global | Varchar(255) - Used to store the link to where the profile picture of the user is stored |
| CountryCode | Global | Varchar(4) - Used to store the country code of the user’s phone number |
| PhoneNumber | Global | Varchar(14) - Used to store the user’s phone number |
| AddressLine1 | Global | Varchar(255) - Used to store the user’s address line 1 |
| AddressLine2 | Global | Varchar(255) - Used to store the user’s address line 2 |
| PostCode | Global | Varchar(10) - Used to store the user’s postcode |
| Town | Global | Varchar(30) - Used to store the user’s town |
| Region | Global | Varchar(30) - Used to store the user’s region where they live |
| Country | Global | Varchar(255) - Used to store the user’s country |
| Blocked | Global | Bit - Used to store if the user is blocked |
| TimesLoggedIn | Global | Integer(10) - Used to see how many times the user has logged in |
| Sex | Global | Bit - Used to show what gender the user is |
| NIN | Global | Varchar(25) - Used to show the user’s National Insurance Number |
| EmergencyContact | Global | Integer(10) - Used to show the user’s emergency contact number |
| Raise | Global | Integer(10) - Used to show how much the user’s salary is raised by per annum |
| Strikes | Global | Integer(1) - Used to show how many times one person has a strike |

User Interests

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for user interests |
| Code | Global | Integer(10) - Used to see what type of interest the user has |
| DateTime | Global | Date - Used to see when the interest was initialised |

Cases

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for cases |
| Solved | Global | Bit - Used to see if the case is solved |
| Email | Global | Varchar(80) - Used to see the user’s email address |
| Title | Global | Varchar(100) - Used to store the title of the case |
| Description | Global | Varchar(max) - Used to store the description of the case |

Answers

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for answers |
| Title | Global | Varchar(255) - Used to store the title of the answer |
| Description | Global | Varchar(max) - Used to store the description of the answer |
| Points | Global | Integer(10) - This will tally up any points for good answers that the users post |

Questions

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for questions |
| Solved | Global | Bit - Used to see if the question is solved |
| Title | Global | Varchar(100) - Used to store the title of the questions |
| Description | Global | Varchar(max) - Used to store the description of the questions |
| Views | Global | Integer(10) - Used to see how many views the question has |

Employee Types

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for Employee Types |
| Title | Global | Varchar(100) - Used to store the title of the employee type |
| Description | Global | Varchar(max) - Used to store the description of the case |
| BaseSalary | Global | Float(6) - Used to define the salary of an employee type |

Passwords

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the passwords |
| PassString | Global | Varchar(22) - The password |
| Valid | Global | Bit - Used to store if the password is in use or not |

Business User Types

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the Business User Types |
| Name | Global | Varchar(50) - Used to store the title of the type |
| Administrator | Global | Integer(1) - Used to store what type of access this user has to the administrator app |
| Rota | Global | Integer(1) - Used to store what type of access this user has to the rota app |
| Sales | Global | Integer(1) - Used to store what type of access this user has to the sales app |
| Store | Global | Integer(1) - Used to store what type of access this user has to the store app |
| Messenger | Global | Integer(1) - Used to store what type of access this user has to the messenger app |
| Meetings | Global | Integer(1) - Used to store what type of access this user has to the meetings app |
| Ideas | Global | Integer(1) - Used to store what type of access this user has to the ideas app |

Transactions

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the Transaction |
| Type | Global | Bit - The type will show if it is an expenditure or an income |
| Amount | Global | Float(10) - Shows the amount of money sent/received |
| VAT | Global | Float(10) - Shows the VAT of the transaction |
| Total | Global | Float(10) - Shows the total amount of money sent or recieved |
| DateSent | Global | Date - shows the date sent or received |
| DateRefunded | Global | Date - shows the date refunded if applicable |

Shifts

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the shifts |
| StartDateTime | Global | Date - shows the date the shift has started |
| EndDateTime | Global | Date - shows the date the shift has ended |

Data Transfer Rates

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the data transfer rates |
| StartDateTime | Global | Date - shows the datetime the user has sent a request to the server |
| EndDateTime | Global | Date - shows the datetime the target page has stopped loading |

Error

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the error |
| Type | Global | Varchar(100) - The type of error that is displayed |
| DateTime | Global | Date - Displays the datetime that the error took place |

Ideas

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the ideas |
| Title | Global | Varchar(100) - The title of the idea being presented |
| Description | Global | Date - The description of the idea presented |

Holidays

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the holiday |
| StartDateTime | Global | Date - shows the datetime the holiday starts at |
| EndDateTime | Global | Date - shows the datetime the holiday ends at |
| Accepted | Global | Bit - shows whether the holiday is accepted |

Messages

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the message |
| DateTimeSent | Global | Date - shows the datetime the message was sent |
| DateTimeViewed | Global | Date - shows the datetime the message was viewed |
| ContentString | Global | Varchar(Max) - shows the content of the message |
| ContentImagePath | Global | Varchar(Max) - shows the path of the attachment of the message |

Items

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the item |
| Name | Global | Varchar(60) - Used to store the title of the item |
| Description | Global | Varchar(255) - Used to store the description of the item |
| ImagePath | Global | Varchar(255) - Used to store the image path |

Updates

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the update |
| Title | Global | Varchar(60) - Used to store the title of the update |
| Description | Global | Varchar(255) - Used to store the description of the update |

Data Over Time

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the data over time |
| TimeStamp | Global | Date - Used to store the timestamp of when the data over time analysis was taken |
| MemoryMB | Global | Float(10) - Used to see how many megabytes the business is storing over time |

Businesses

| Name | Scope | Description |
| --- | --- | --- |
| Id | Global | Integer(10) - Used as a PK for the business |
| Name | Global | Varchar(255) - Used to store the name of the business |
| Type | Global | Varchar(255) - Used to store the type of the business |
| StartDate | Global | Date - Used to store the start date of the business |
| EndDate | Global | Date - Used to store the end date of the business |
| AddressLine1 | Global | Varchar(255) - Used to store the first address line of the business |
| AddressLine2 | Global | Varchar(255) - Used to store the second address line of the business |
| Postcode | Global | Varchar(10) - Used to store the postcode of the business |
| Town | Global | Varchar(30) - Used to store the town the business is located at |
| Region | Global | Varchar(30) - Used to store the region the business is located at |
| Country | Global | Varchar(255) - Used to store the country the business is located at |
| CardType | Global | Varchar(20) - Used to store the card type the business will pay with |
| CardNumber | Global | Integer(16) - Used to store the card number the business will pay with |
| ExpiryMonth | Global | Integer(2) - Used to store the expiry month of the card the business will pay with |
| ExpiryYear | Global | Integer(4) - Used to store the expiry year of the card the business will pay with |
| SecurityNumber | Global | Integer(3) - Used to store the security number of the card the business will pay with |
| Email | Global | Varchar(60) - Used to store the administrator’s email/business contact email |
| Password | Global | Varchar(22) - Used to store the password of the administrator |
| PlanId | Global | Integer(1) - Used to store the plan Id the business will sign up with |

# 5.21 - Bibliography

There are no entries for the bibliography in this document.

# 5.22 - Software Requirements Spec. Work Log

| Entry | Description | Person | Date | Mins Spent |
| --- | --- | --- | --- | --- |
| 1 | Formatted the document | Aidan Marshall | 25/11/17 | 6 |
| 2 | Started the Conceptual ERD | Aidan Marshall | 14/11/17 | 68 |
| 3 | Continued the Conceptual ERD | Aidan Marshall | 16/11/17 | 43 |
| 4 | Continued the Conceptual ERD | Aidan Marshall | 19/11/17 | 82 |
| 5 | Continued the Conceptual ERD | Aidan Marshall | 22/11/17 | 122 |
| 6 | Wrote the Conceptual ERD key | Aidan Marshall | 25/11/17 | 32 |
| 7 | Continued the Conceptual ERD | Aidan Marshall | 25/11/17 | 145 |
| 8 | Continued the Conceptual ERD | Aidan Marshall | 26/11/17 | 188 |
| 9 | Finished the Conceptual ERD | Aidan Marshall | 27/11/17 | 328 |
| 10 | Modified the conceptual ERD | Aidan Marshall | 28/11/17 | 120 |
| 11 | Decided to concentrate on critical requirements | Aidan, Graham | 26/3/18 | 12 |
| 12 | Took out ERD descriptions | Aidan Marshall | 26/3/18 | 4 |
| 11 | Created the use case diagrams | Aidan Marshall | 26/3/18 | 62 |
| 12 | Created the class diagram | Aidan Marshall | 26/3/18 | 26 |
| 11 | Created the ERDs | Aidan Marshall | 26/3/18 | 79 |
| 12 | Created the use case descriptions | Aidan Marshall | 26/3/18 | 16 |
| 13 | Created the identifier list | Aidan Marshall | 26/3/18 | 22 |
| 14 | Created Initial Use Case Diagram V2 | Aidan Marshall | 17/5/18 | 9 |
| 15 | Created Activity Diagram V2 | Aidan Marshall | 17/5/18 | 14 |
| 16 | Discussed class diagram | Aidan Marshall | 17/5/18 | 10 |
| 17 | Discussed initial ERD | Aidan Marshall | 17/5/18 | 5 |
| 18 | Added state and communications diagram | Aidan Marshall | 18/5/18 | 139 |
| 19 | Completed state diagram | Aidan Marshall | 18/5/18 | 22 |
| 20 | Added the system architecture | Aidan Marshall | 2/6/18 | 17 |
| 21 | Completed the initial screen layouts | Aidan Marshall | 5/6/18 | 3 |
| 22 | Completed the final screen layouts | Aidan Marshall | 5/6/18 | 92 |
| 23 | Completed all except for identifier lists | Aidan Marshall | 5/6/18 | 18 |
| 24 | Completed the Identifier lists | Aidan Marshall | 5/6/18 | 134 |
| 1818 | | | | |