# UNSW Computer Science

COMP 1531: Software Engineering fundamentals

Semester 2, 2018

## HAMS (HealthCare Appointment Management System)
## For Medisoft

# Group Number One Project Report

Submitted 19 October 2018


| | | |
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# User Stories

## User

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|---|---|
| **ID** | US1 |
| **Name** | Log in |
| **User Story Description:**<br>As a user, I want to log into the system with a username and password so that I can securely access the site.<br><br>**Acceptance Criteria:**<br>● Login screen provides text boxes for email and password inputs as well as a 'login' button<br>● A patient can log into the system using a preset email and password<br>● Password is hidden<br>● Email requires an "@" and if a user supplies no "@" a prompt appears saying "please enter an email address"<br>● If the email is iccorect and has an "@" or password the password is incorrect the login page reload with the email/password boxes emptied.<br>● After successfully logging in a patient they are redirected to a "search" page<br>● After success logging in a provider they are redirected to their "future appointments" page. | |
| **Estimate** | 4 Story Points (1 SP = 2.5 hours) |
| **Priority** | 5 (lowest) |

# Patient

**Epic 2:** As a patient, I want to be able to search for healthcare centre/provider with specific criteria (provider, centre name, suburb and service) so that I can find centre that suits my preferences.

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|---|---|
| **ID** | US2.1 |
| **Name** | Search |
| **User Story Description:**<br>As a patient, I want to be able to search by the given **options** so that I can get more tailored/specific search results.<br><br>**Acceptance Criteria:**<br>● **Search options:** centre location, centre name, provider name and provider service<br>● Patient prompted with a "search" text box with a "search" button<br>● Radio buttons for the **search options** and a drop down for provider type.<br>● A patient can select any of the radio button options only one at a time and any of the services.<br>● Clicking the "search" button will initiate the search function<br>● If search is successful all results will be displayed under the search box as a list of profiles (see **View search results**)<br>● If no results match the search requirement(option), a message is displayed to an attendee, eg: "No results. Try another search?"<br>● The search is not case sensitive.<br>● Partial matches for name searches are displayed, eg: "rand" returns "randwick hospital"<br>● User can press search with a blank input to display<br>○ If radio option "centre suburb" or "centre name" is selected, all centres will be displayed<br>○ If the option is provider name, all providers will appear | |
| **Estimate** | 6 Story Points (1 SP = 2.5 hours) |
| **Priority** | 1 (Highest) |

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|---|---|
| **ID** | US2.2 |
| **Name** | View search results |
| **User Story Description:**<br>As a patient, I want to view search results for **option(s)**, under the search box , so that i can choose which option suits me best.<br><br>**Acceptance Criteria:** | |

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| ● If the search is for a centre, the result will list each relevant centre including its; ratings, name, location, types of services and a link to it's profile page.<br>● If the search is for a provider it will list their name, profession, ratings, affiliated centers, and a link to their profile page | |
| **Estimate** | 6 Story Points (1 SP = 2.5 hours) |
| **Priority** | 1 (Highest) |

**Epic:** As a patient, I want to view a health center or provider's details so that I can make an informed judgement about them to decide if I want to visit them.

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|---|---|
| **ID** | US3.1 |
| **Name** | View Health Provider's profile |
| **User Story Description:**<br>As a patient, I want to view a Health Provider's profile page so that I can decide whether I want to visit them<br><br>**Acceptance Criteria:**<br>● A health provider's profile page can be accessed by clicking on their name when they are returned from a search result.<br>● The provider's profile page displays the provider's; name, rating, services and list of associated centres which can be view by any user.<br>● There should be a "book" button for each associated centre which redirects the patient to a 'booking page' that allows a patient to make a booking at that centre for that provider.<br>● The book button is only visible for user type patients.<br>● An option for leaving a review and rating (1-5) is provided and can only be done by patients (US6).<br>● Clicking one of these numbered buttons will leave a review and make it visible on the providers profile page.<br>● Leaving a new review will cause the provider's average rating to update both on their profile and in the search results.<br>● Adding a new review will remove a previous review left on that providers profile by that patient. | |
| **Estimate** | 7 Story Points (1 SP = 2.5 hours) |
| **Priority** | 2 (High) |

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|---|---|
| **ID** | US3.2 |

| **Name** | View Affiliated Health Centers |
|---|---|
| **User Story Description:**<br>As a patient, I want to be able to see a health provider's affiliated health centers when viewing their page so that I can find which centre is closest to me, and what other services each centre provides.<br><br>**Acceptance Criteria:**<br>● Display an "affiliated centres title" under which is a list of centres displaying their name and a button linking to a booking form for the specified provider and affiliated centre. Affiliated centres are those that the health provider works at. | |
| **Estimate** | 2 Story Point (1 SP = 2.5 hours) |
| **Priority** | 4 (Low) |

| **ID** | US3.3 |
|---|---|
| **Name** | View Health Centre Profile Page |
| **User Story Description:**<br>As a patient, I want to view the profile page of a health centre so I can determine whether that center would suit me (location, services), or if it has a provider that suits my needs<br><br>**Acceptance Criteria:**<br>● A health care centre's profile page can be accessed by clicking on their name when they are returned from a search result.<br>● Displays centre name, location, rating, associated provider and types of services provided.<br>● A booking button next to each providers name refers the user to a booking form for the specified centre and affiliated provider. | |
| **Estimate** | 5 Story Points (1 SP = 2.5 hours) |
| **Priority** | 2 (High) |

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|---|---|
| **ID** | US3.4 |
| **Name** | View a Centres Affiliated Providers |
| **User Story Description:**<br>As a patient, I want to view a health centers affiliated providers (sorted) so that I can choose a provider best suited to me<br>**Acceptance Criteria:**<br>● Providers are sorted by service and displayed as a list<br>● Each list item contains a provider's name, their specialty and booking button which you can click to be redirected to a booking page (US 4.1) | |
| **Estimate** | 4 Story Point (1 SP = 2.5 hours) |
| **Priority** | 3 (Medium) |

**Epic:** As a patient, I want to book an appointment with a provider so that I don't have to call or come in to physically to make an appointment.

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|---|---|
| **ID** | US4.1 |
| **Name** | Carrying out booking |
| **User Story Description:**<br>As a patient, I want to carry out a booking online by selecting a 30 minute time slot on a given day so that I can select the best time for me<br><br>**Acceptance Criteria:**<br>● A logged in patient can click on a "book" button on a provider's or centre's page to be redirected to a page with the booking form.<br>● If starting from a centre's page, the patient clicks the "book" button next to the provider that they wish to book with.<br>● If starting from a providers page, the patient clicks the "book" button next to the centre that they wish to have the appointment at.<br>● The patient is able to select their preferred day from a list of 30 minute time slots for the next 10 days.<br>● If no time slots are available, display an empty list under that day<br>● If there are available times, the user may select one from the given list by clicking on the timeslot.<br>● There is an option to provide a reason for their visit underneath each time slot (US5.2)<br>● A user selects a time slot by clicking on the time they wish to book<br>● Once a user clicks on the booking their reason for booking is saved<br>● Once a time slot has been selected, the user is redirected to their future appointments | |

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| page where they can see their booking has been added to their list of appointments.<br>● If a patient attempts to book at a time slot in which they already have an appointment display a message saying “Please select another time” | |
| **Estimate** | 6 Story Points (1 SP = 2.5 hours) |
| **Priority** | 3 (Medium) |

| | |
|---|---|
| **ID** | US4.2 |
| **Name** | Leave optional reason when booking |
| **User Story Description:**<br>As a patient, I want to leave a description of my reason to visit within my booking for an appointment, so that the provider can be informed of what’s to come.<br><br>**Acceptance Criteria:**<br>● A text field is available for the user to optionally input a max of 1000 characters into explaining their reason for visit.<br>● Extra information is submitted with the booking, and the Provider is then able to see it in their bookings. | |
| **Estimate** | 2 Story Points (1 SP = 2.5 hours) |
| **Priority** | 3 (low) |

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|---|---|
| **ID** | US5 |
| **Name** | Leave Review |
| **User Story Description:**<br>As a patient, I want to be able to review a health care provider so that I can let other people know the quality of service that is provided.<br><br>**Acceptance Criteria:**<br>● A patient can enter in a review on a provider’s profile page by typing in the text booking<br>● A user can press 1 of 5 buttons 0-5 to provide a number rating.<br>● Pressing a rating number updates the provider’s average rating.<br>● A user can click a button called “save review” to quit and save the review<br>● The patient’s most recent review / rating is displayed<br>● A patient’s review displays their first name only | |

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| **Estimate** | 4 Story Points (1 SP = 2.5 hours) |
| **Priority** | 4 (Low) |

**Epic:** As a patient I want my history to be protected from unwanted users and rewritten medical records to ensure my treatments are correctly documented

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|---|---|
| **ID** | US6.1 |
| **Name** | Accessing Patient History |
| **User Story Description:**<br>As a patient, I want my medical record only accessible to health care providers I visit so that my privacy is protected from unwanted individuals.<br>**Acceptance Criteria:**<br>● Once a patient makes a booking the ability to view the patient's history is enabled for that provider<br>● A provider may access their patient's history by looking at their own past appointments list and clicking a 'view history' button under a past appointment with that patient | |
| **Estimate** | 4 Story Points (1 SP = 2.5 hours) |
| **Priority** | 3 (Medium) |

| | |
|---|---|
| **ID** | US6.2 |
| **Name** | Altering history |
| **User Story Description:**<br>As a patient, I want my medical record be unable to be altered by any user; only added to by a provider I have booked for, this is to ensure my health record is correct.<br>**Acceptance Criteria:**<br>● A healthcare provider who I have an appointment with has a textbox to add written notes<br>● Max characters for notes is 1000 characters<br>● A healthcare provider who I have an appointment with has a text field where they can add medications one at a time, once they have typed the name they press "add" to add the medication to a list and clear the textfield<br>● Max character for medication is 100 character<br>● The provider may add extra medications after selecting add, since the input field will cleared once a medication is added | |

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| • An “end session” button may be clicked by the provider to save the notes they have made during the consultation and moves the session details to both the provider and patient’s history lists. | |
| **Estimate** | 6 Story Points (1 SP = 2.5 hours) |
| **Priority** | 3 (Medium) |

## Provider

**Epic:** As a provider, I want to be able to view a list of all my past and future appointments, the accompanied patient’s profiles and booking details to understand my patients health and reasons for visits.

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|---|---|
| **ID** | US6.1 |
| **Name** | View Future Bookings List |
| **User Story Description:**<br>As a provider, once logged in, I want to view a list of all my future appointments so I know who I’m seeing and when i’m seeing them.<br><br>**Acceptance Criteria:**<br>• Display future appointments including; time, patient’s name and the description user provided<br>• If there are no future appointments display text saying “no appointments”<br>• Ability to click on a “details” button to view the session details.<br>• After clicking the details button, the provider may record notes and medication for the session. | |
| **Estimate** | 6 Story points (1 SP = 2.5 hours) |
| **Priority** | 1 (Highest) |

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|---|---|
| **ID** | US6.2 |
| **Name** | View Past Bookings |
| **User Story Description:**<br>As a provider, once logged in, I want to view a list of all my past appointments in reverse chronological order so I can review them.<br><br>**Acceptance Criteria:** | |

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| ● Display past appointments including; time, patient's name, the description the patient has provided, list of medication added and notes taken<br>● If there are no past appointments display text saying "No Past Appointments" | |
| **Estimate** | 5 Story Points (1 SP = 2.5 hours) |
| **Priority** | 4 (Low) |

**Epic:** As a provider, I want to be able to view my patients history and record notes regarding their visit so that I can better treat their issue and maintain an up to date health record for the patient to assist in future consultations.

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|---|---|
| **ID** | US7.1 |
| **Name** | Add to user's file |
| **User Story Description:**<br>As a health provider, I want to be able to record notes of patient's visit during the consultation so that the patient's record is up to date<br>**Acceptance Criteria:**<br>● Record each medications prescribed in their designated field within the form max of 100 characters<br>● Another medication input cell can be added by pressing a button if more than one is prescribed. Initial field may be left empty if no prescriptions are made.<br>● Record a max of 1000 characters of other notes in another designated text field within the form<br>● The provider can save the file at any time after adding in notes to the booking file. | |
| **Estimate** | 5 Story Points (1 SP = 2.5 hours) |
| **Priority** | 2 (High) |

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|---|---|
| **ID** | US7.2 |
| **Name** | View Patient History |
| **User Story Description:**<br>As a health provider I want to view my patient's history so I know their health status.<br><br>**Acceptance Criteria:**<br>● Display a list of past appointments in a reverse chronological list<br>● For each booking in the list, display the date of the booking, and the brief description left when patient booked.<br>● Click on each each appointment card to view more details to reveal notes and medication recorded by other providers during appointment. | |

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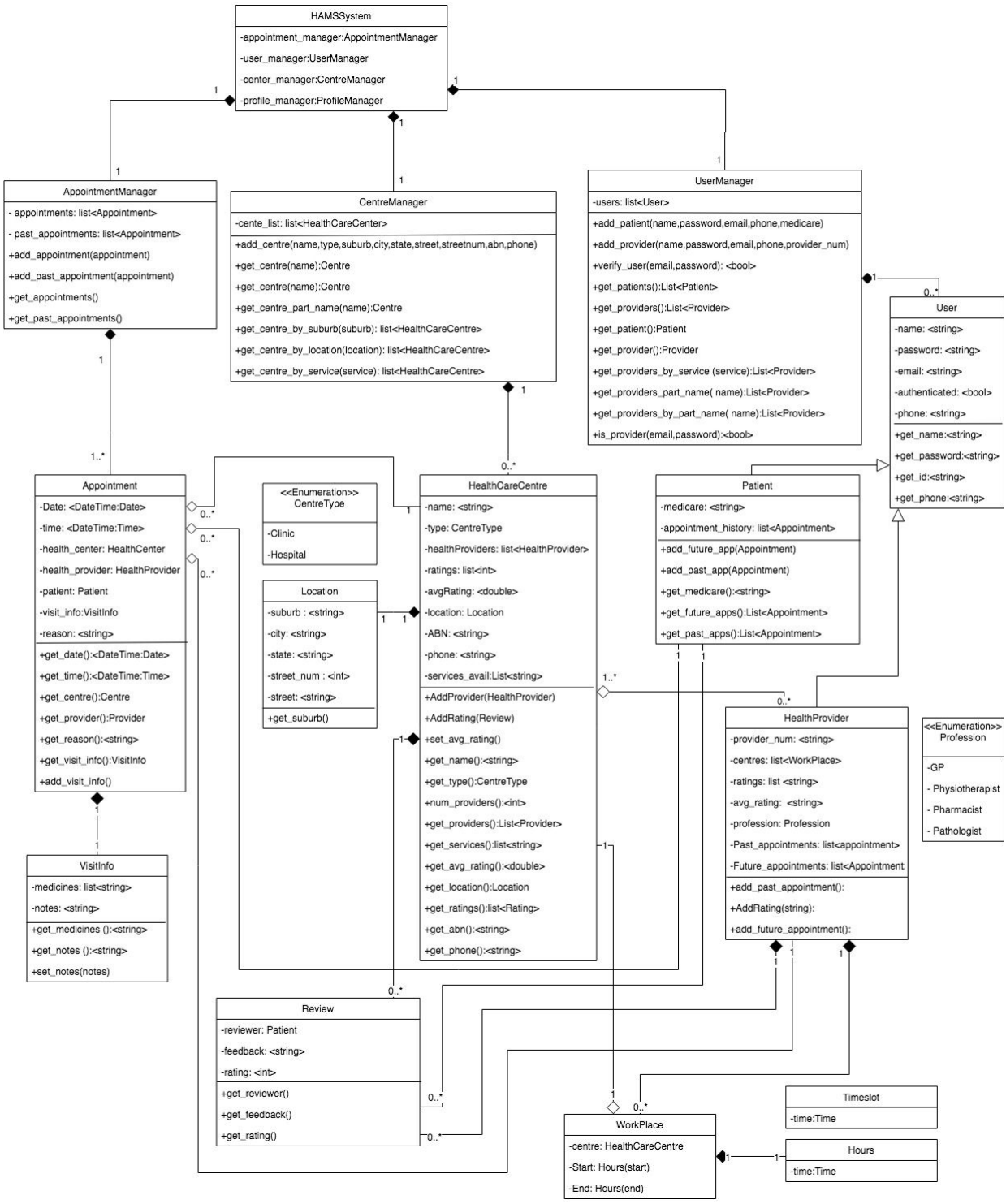
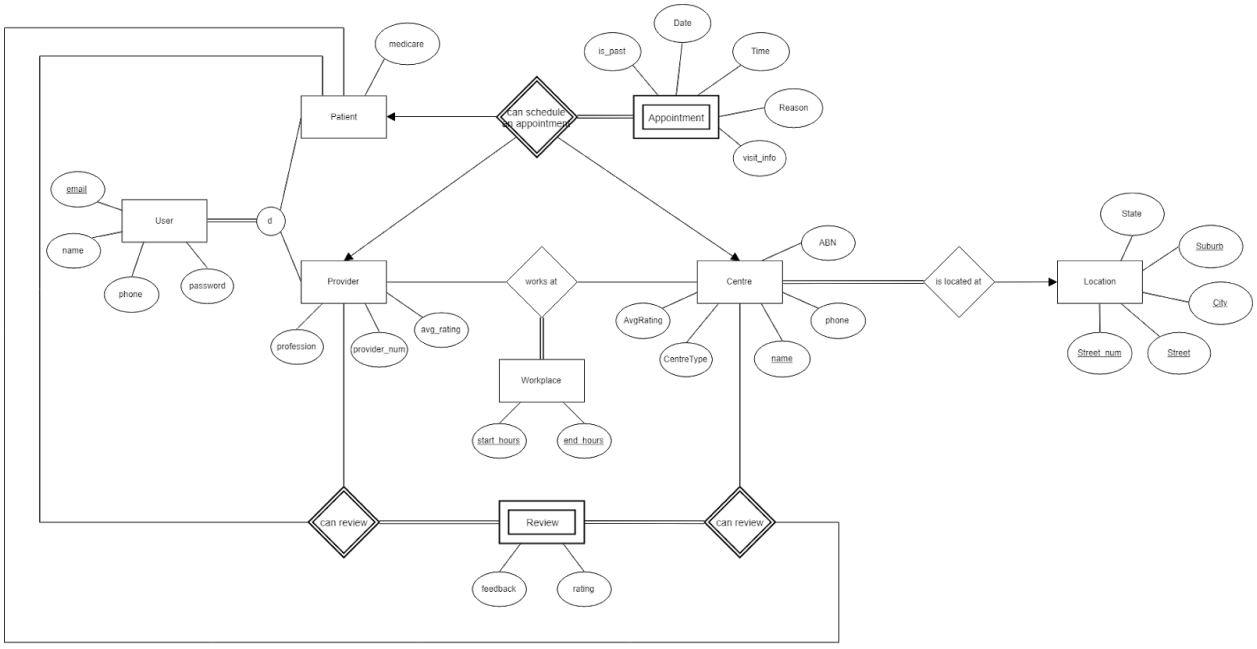
| **Estimate** | 5 Story Points (1 SP = 2.5 hours) |
| **Priority** | 3 (Medium) |

# Class Diagram



# Entity-Relationship Diagram




A higher res pdf version is attached in the report folder

# Project Log

## Week 5 Tuesday, 21st August 2018 - *Meeting 1*

**Summary of Decisions and Tasks Completed:**

- Exchanged details for contact
- Found each other's strengths
- Created initial user stories

**Allocated Responsibilities:**

| **Responsibility** | **Group Member Allocated** |
|---|---|
| Create Class Diagram Draft | Anton |
| Draft user stories | Anton, Ryan, Natalie |
| Create User story breakdown Diagram | Anton |
| Revise Class Diagram Draft<br>- Make edits where necessary | Natalie, Ryan, Matthew |
| Complete User Stories<br>- Implementation priority<br>- Acceptance criteria<br>- ID numbers | All members |

## Week 5 Wednesday, 22nd August 2018 - *Online Discussion 1*

Discussed potential UI themes for Final Design, team's familiarity with bootswatch/bootstrap, and potential themes to use. Agreement made for blue to be one of the theme's main colours.

## Week 5 Saturday, 25th August 2018

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| **Natalie** | Transferred Initial user stories written into template provided on WebCMS.<br>Added some acceptance criteria to most stories.<br>Revised diagram draft. Not many changes needed - Relationships still to be completed. |
| **Anton** | Finished class diagram draft<br>Created a diagram visualising the relatio |

## Week 5 Sunday, 26th August 2018

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| **Ryan** | Created and edited user stories for group meeting. |

## Week 6 Tuesday, 28th August 2018 - *Meeting 2*

**Reflection on Completion of Assigned Tasks:**

- User Stories Incomplete due to uncertainty of correctness

**Summary of Decisions and Tasks Completed:**

- Created initial user stories
- Tutors revised & gave feedback on user stories
- Updated user stories

**Allocated Responsibilities:**

| **Responsibility** | **Group Member Allocated** |
|---|---|
| Form Epic Stories | All members |
| Edit and Complete Remaining User Stories | All members |
| Submit User Stories | Anton |

## Week 6 Wednesday, 29th August 2018

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| **Ryan** | Added more information to user stories fixing up errors and inconsistencies that was found from meeting 2 |

## Week 6 Saturday, 1st September 2018

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| **Matthew** | Fixed some typos and review the user stories |

## Week 6 Sunday, 2nd September 2018

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| **Natalie** | Completed most priority allocations and estimates. Edited acceptance criteria for some user stories |
| **Ryan** | Re read user stories fixing errors, getting clarification on some user stories and creating some missing user stories |
| **Anton** | Looked over final version of user stories<br>Edited spelling errors and user story points to be in hours not days |

## Week 7 Tuesday, 4th September 2018 - *Meeting 3*

**Reflection on Completion of Assigned Tasks:**

- All tasks due prior were completed

**Summary of Decisions and Tasks Completed:**

- Splitting into two sub-teams:
    - Front-end focused and back-end focused
- Front end team (Nat & Ryan ) to develop all HTML pages and then work on displaying information. User stories allocated: 3.*,6.1 to be completed by first release date
- Back end team (Anton & Matthew) to complete user stories: 1,2.1,4.1. Also assigned to create remaining classes for later backend work.

**Allocated Responsibilities:**

| **Responsibility** | **Group Member Allocated** |
|---|---|
| Frontend Design & Implementation | Natalie & Ryan |
| Viewing appointments (UI & backend)<br>Create remaining templates | Natalie |
| Complete profile pages (UI & Backend) | Ryan |
| Backend design and implementation<br>- Implementing class diagram with relevant user stories | Anton & Matthew |

## Week 7 Wednesday, 5th September 2018

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| **Natalie & Ryan** | Designed first revision of UI and picked a CSS layout from bootstrap to use (Lumen). Also updated class diagram to final design. |

## Week 7 Thursday, 6th September 2018

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| **Natalie** | Built basic frame for future appointments screen. Created simple routes.py & server.py files for testing pages. |
| **Anton** | Began implementing classes for patient, provider,  workplace, review |

## Week 7 Friday, 7th September 2018

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| **Ryan** | Started the provider and centre pages building the html framework. |

## Week 7 Saturday, 8th September 2018

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| **Natalie** | Built basic frame for booking an appointment page, completed login page |

## Week 7 Saturday, 9th September 2018

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| **Ryan** | Implemented css to profiles and have them working besides backend connection |

## Week 8 Monday, 10th September 2018

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| **Natalie** | Built basic frame for search page. |
| **Anton** | Completed assigned classes and began adding methods to all classes<br>Created a system class |

## Week 8 Tuesday, 11th September 2018 - *Meeting 4*

**Reflection on completed tasks:**

- Class implementation still to be completed
- HTML pages complete

**Summary of decisions and tasks to be completed:**

- Continuation to work on allocated tasks from last week

**Allocated Responsibilities:**

| **Responsibility** | **Group Member Allocated** |
|---|---|
| Frontend Design & Implementation | Natalie & Ryan |
| Viewing appointments (UI & backend)<br>Create remaining templates | Natalie |
| Complete profile pages (UI & Backend) | Ryan |
| Backend design and implementation<br>- Implementing class diagram<br>- Revising methods and attributes<br>- Merging frontend and backend via flask<br>- | Anton & Matthew |

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|---|---|
| **Matthew & Anton** | Started creating backend for CentreManager, HealthCareCentre, CentreType, Location, UserManager, User.<br>Implemented system.py |

## Week 8 Wednesday, 12th September 2018

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|---|---|
| **Ryan** | Implemented backend with profile pages and booking |
| **Anton** | Continued implementing system methods for adding provider, patient, centre and getting necessary attributes (with Matthew)<br>Implemented verification methods in system to verify user and check if a user is a provider |

## Week 8 Thursday, 13th September 2018

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|---|---|
| **Natalie** | Implemented jinja variables into html pages. Created Appointments related python classes. |
| **Anton** | Began working on login function in routes.py |

## Week 8 Friday, 14th September 2018

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|---|---|
| **Ryan** | Found error with backend implemented from profile pages and booking attempting to fix them with limited success |
| **Anton** | Went to consultation session to consult on login function with Matthew<br>Worked on debugging system methods with Matthew |

## Week 8 Saturday, 15th September 2018

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| **Anton** | Completed search function in routes.py |

## Week 8 Sunday, 16th September 2018

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| **Natalie** | Completed Appointments classes and connected with Frontend. Some minor edits to user classes as well (relating to appointments).<br>Completed velocity chart. |
| **Matthew** | Started implementing server.py to read datas from the csv files to be able to use search function.<br>Fixing some minor bugs, finished server.py to function properly.<br>Fixing and completing some functions in routes.py as well as integrating backEnd in frontEnd together with the others. |
| **Ryan** | Fixed error in profiles pages with backend allowing data to displayed depending on individual user or centre and booking to occur |
| **Anton** | Implemented centre profile; Booking; Appointments.<br>Debugged all functions in routes.py<br>Added extra functionality to system.py |

## Weeks 9-11 September/October 2018 (Database Attempt)

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| **Ryan** | Partially implemented persistence via sql<br>Implemented for storing users & centres (patients)<br>Still need to do it for bookings history |

## Week 10 Monday, 1st October 2018

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| **Natalie** | Fixed issues with booking appointments - removing wrong times when booking, etc<br>Fixed search to now work with partial matches |

## Week 10 Thursday, 4th October 2018

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| **Natalie** | Completed ‘Add ratings’ user story<br>Touched up front-end |
| **Matthew** | Added in error handling for access to pages without login<br>Created redirect page for this |

## Week 11 Monday, 8th October 2018

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|---|---|
| **Natalie** | Implemented prevention of providers from making appointments with any provider, as well as prevention of them leaving reviews |
| **Ryan** | Completed html template for viewing past appointments |

## Week 11 Friday, 12th October 2018 - Final Meeting

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|---|---|
| **Anton & Matthew** | Completed Persistence using CSV files.<br>Completed viewing past appointments<br>Remaining error handling |
| **Natalie** | Fixed up ratings so that only patients could provide a rating<br>Allowed providers to view their patient’s history |

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| | Set up routes for viewing past appointments |
| **Ryan** | Completed pytests fixing up functionality errors that were found |

## Week 11 Saturday,13th & Sunday, 14th October 2018

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| **All** | Alpha testing and final revisions |

## Week 12 Wednesday,17th & thursday, 18th October 2018

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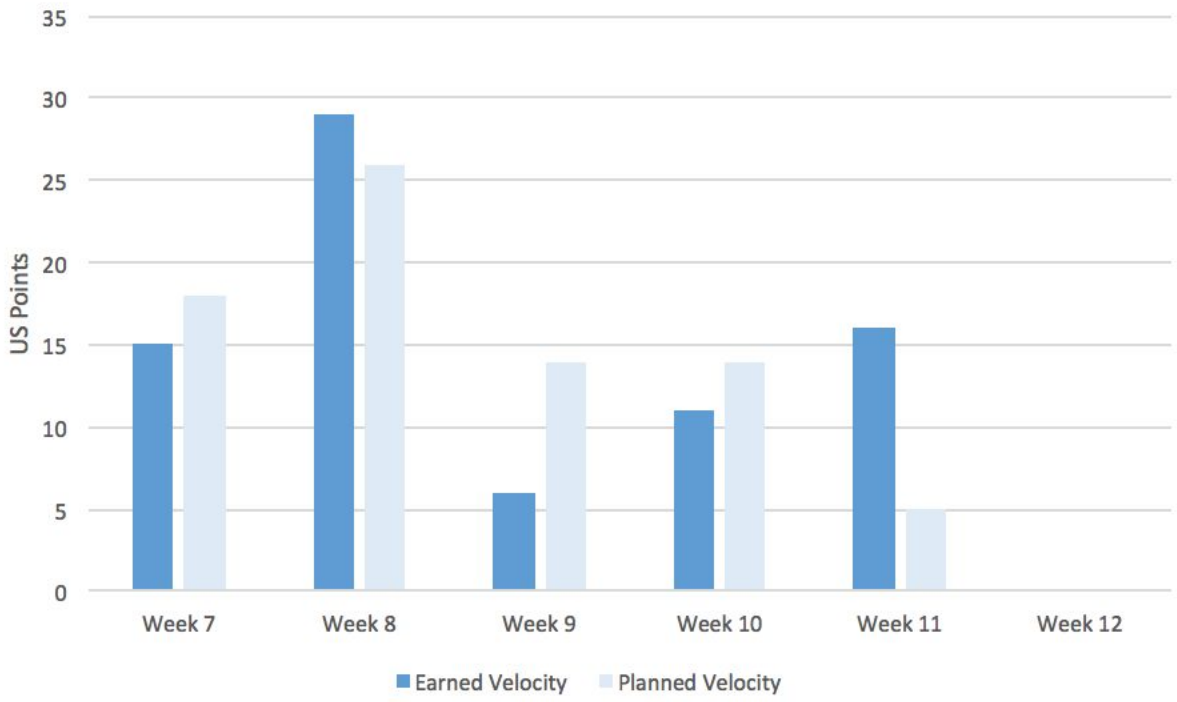
| **Natalie** | Completed velocity chart and checked class diagram |
| **Mathew** | Updated class diagram |
| **Ryan** | Updated user stories |
| **Anton** | Completed ER diagram |

# Velocity Chart