COMP1216. Software Modelling and Design

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A COVID Vaccination Tracking System

2021-22 Group 21

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0.1 Introduction

- ddb1u20 (Daniel Braghis)
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- aaf1u20 (Alin Formusatii)
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0.2 Scope

Need

- Give citizens the opportunity to get their vaccinations with ease and to reduce potential no shows as they can manage their bookings easily.
- Have the system automated and reduce the need for NHS staff to manage the appointments.

Goals

- Facilitate the logistics behind creating vaccination centres and keeping the bookings/vaccinations organised.
- Facilitate citizens getting their vaccinations and managing their bookings.
- Track vaccination batches.

Business Case

- Decrease the vulnerability of the population to Covid-19 which will then have a positive impact on the economy.
- Reduces the cost to the NHS to have an automated system to book appointments as opposed to staff who would manage these appointments by phone. This alone should cover the cost of making the software.
- Facilitating the tracking of vaccinations can help pinpoint bad batches and save money on what might otherwise be large scale operations to find out the location of a particular batch.

Stakeholders

- NHS, Vaccine centre administrators, centre staff, citizens, vaccine suppliers.

High-level Operational Concepts

- Tracking vaccination centres stocks, bookings and citizens.
- Registering new vaccination centres by administrators.
- Citizens able to book and manage their vaccinations.
- Vaccination centre staff able to log vaccination information and stock is automatically updated.

Success Criteria

- Increase vaccination rate and reduce no show-up rate.

0.3 Scenarios

0.3.1 Scenario 1. Initialize Centre

Actors: Administrator

Administrator logs into the system to access the administrator page. Selecting the "Register new vaccination centre" option prompts a form to be completed for a new vaccination centre. Completing the form with the name of the centre, stock, working schedule and finally pressing the "Register vaccination centre" button registers a new vaccination centre in the database and its available stock. A success page is displayed, and the administrator is redirected to their dashboard.

0.3.2 Scenario 2. Appointment Booking

Actors: Citizen

A citizen enters the system for vaccination booking. Clicking the "Start Booking" button, prompts an application form. Citizen must input their name, date of birth and NHS number. The system will check for previous received shots and will provide a recommendation for a vaccine based on previous ones. Citizen must select the desired vaccine brand. The system displays a list of vaccination centres with the selected vaccine available. Citizen selects a vaccination centre, and the system lists available days and hours at the selected centre. Selecting a suitable time triggers a confirmation screen with all the previous input details and a "Confirm appointment booking" button. Citizen confirms the booking and gets redirected to the front page.

0.4 Use Cases

0.4.1 Use Case 1. Initialize Centre

Scope: Booking

Primary actor: Administrator

Stakeholders: Administrator, staff, vaccine suppliers, citizens

Preconditions: Administrator has an account registered in the system. Administrator has the appropriate privileges to create a new centre.

Success:

1. Administrator navigates to the system's login page
2. Administrator inputs their login credentials
3. System checks credentials and gives administrator access
4. Administrator selects "Register new vaccination centre" option and is taken to the setup menu
5. Administrator inputs a name for the vaccination centre
6. Administrator inputs initial numbers for each vaccine type clearly labelled
7. Administrator selects the calendar and picks working days and hours
8. Administrator selects the "Register vaccination centre" button
9. A confirmation screen with the basic information is displayed with a "Confirm vaccination centre registration" button
10. A success page is displayed

11. The vaccination centre information is added to the database
12. Administrator is redirected to the vaccination centre dashboard

Extensions: Administrator aborts setup

0.4.2 Use Case 2. Appointment Booking

Scope: Booking

Primary actor: Citizen

Stakeholders: Administrator, staff, vaccine supplier, citizens

Preconditions: Citizen has not taken the maximum amount of vaccine shots. At least 1 of the selected vaccine is available at least 1 centre.

Success:

1. Citizen navigates to the booking an appointment page
2. Citizen starts the booking process
3. System displays booking form
4. Citizen enters name, date of birth, NHS number
5. System checks for previous received shots and provides recommendation based on previous shots
6. Citizen selects a vaccine brand from the options available
7. System displays a list of vaccination centres with the selected vaccine brand available

8. Citizen selects a vaccination centre
9. System displays available days and hours for that centre
10. Citizen selects a preferred time
11. A confirmation screen with all the details is displayed with a “Confirm appointment booking” button
12. A success page is displayed
13. The selected vaccine, date and time is added to the database as “booked”
14. Citizen is redirected to the front page

Extensions: Citizen aborts the booking process

0.5 Use Case Diagram

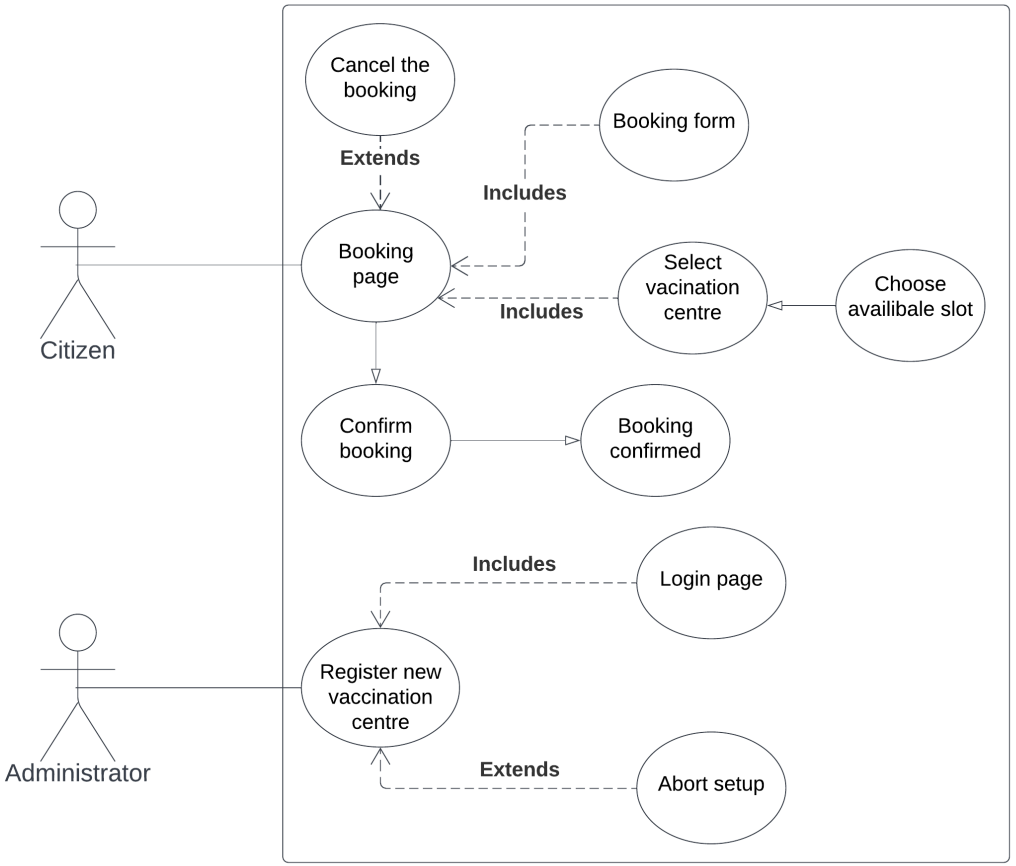

Figure 1: Use Case Diagram

0.6 Class Diagram

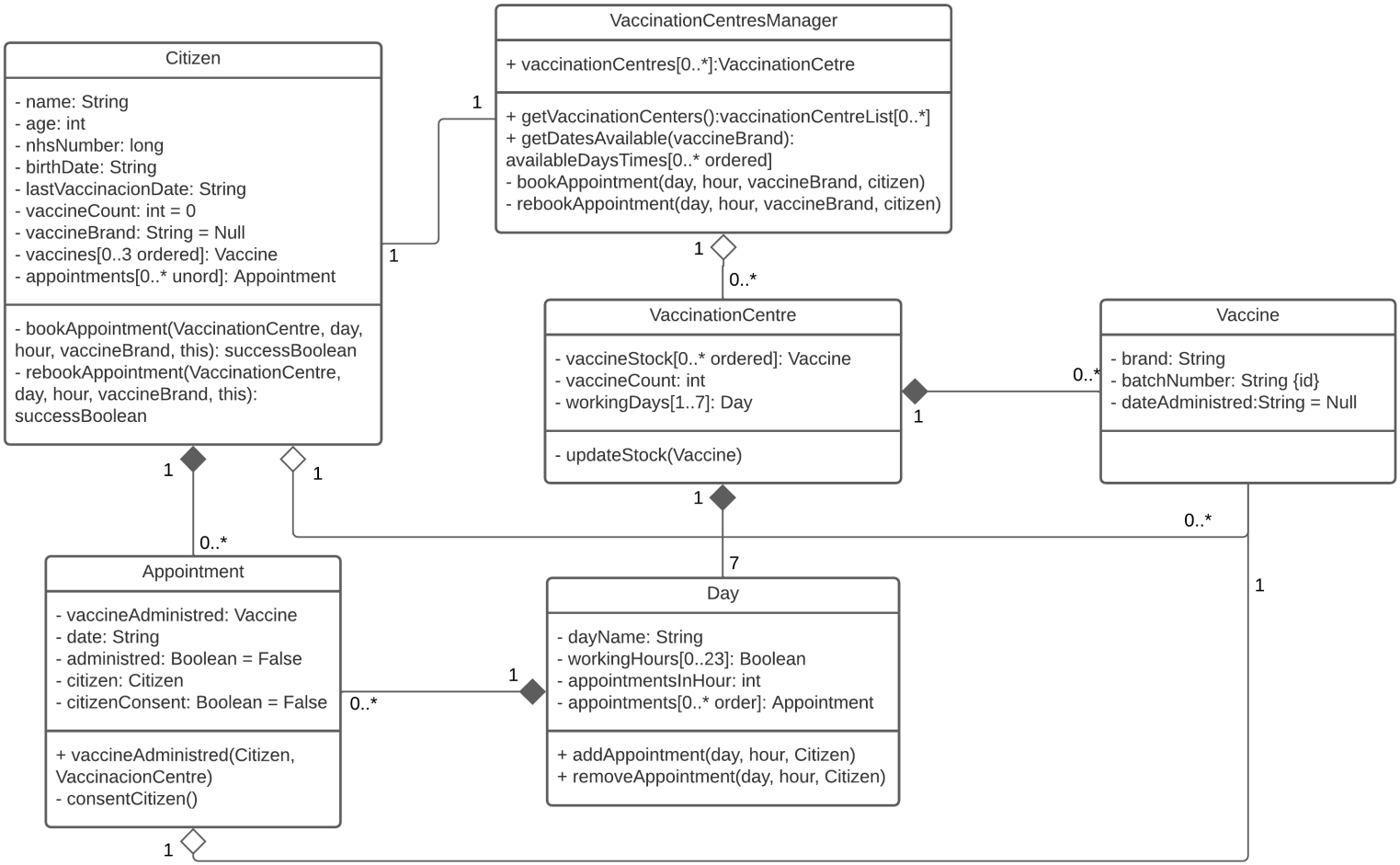

Figure 2: Class Diagram

0.7 Sequence Diagrams

0.7.1 Sequence Diagram 1. Initialize Centre

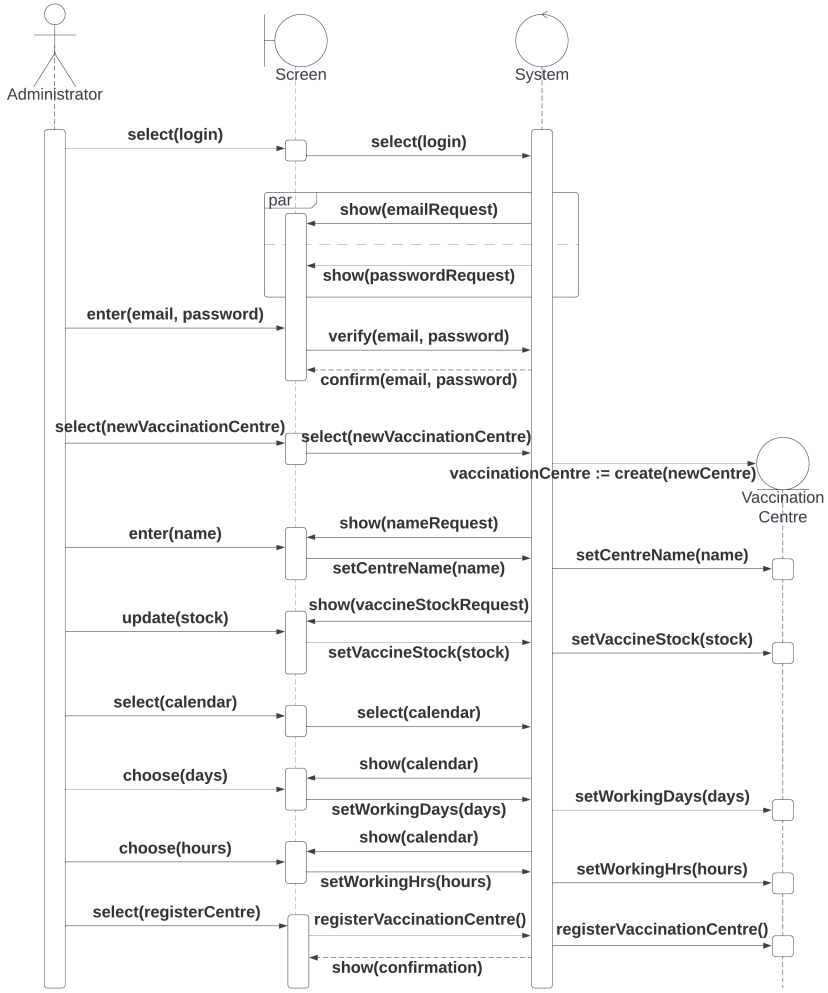

Figure 3: Sequence Diagram 1

0.7.2 Sequence Diagram 2. Appointment Booking

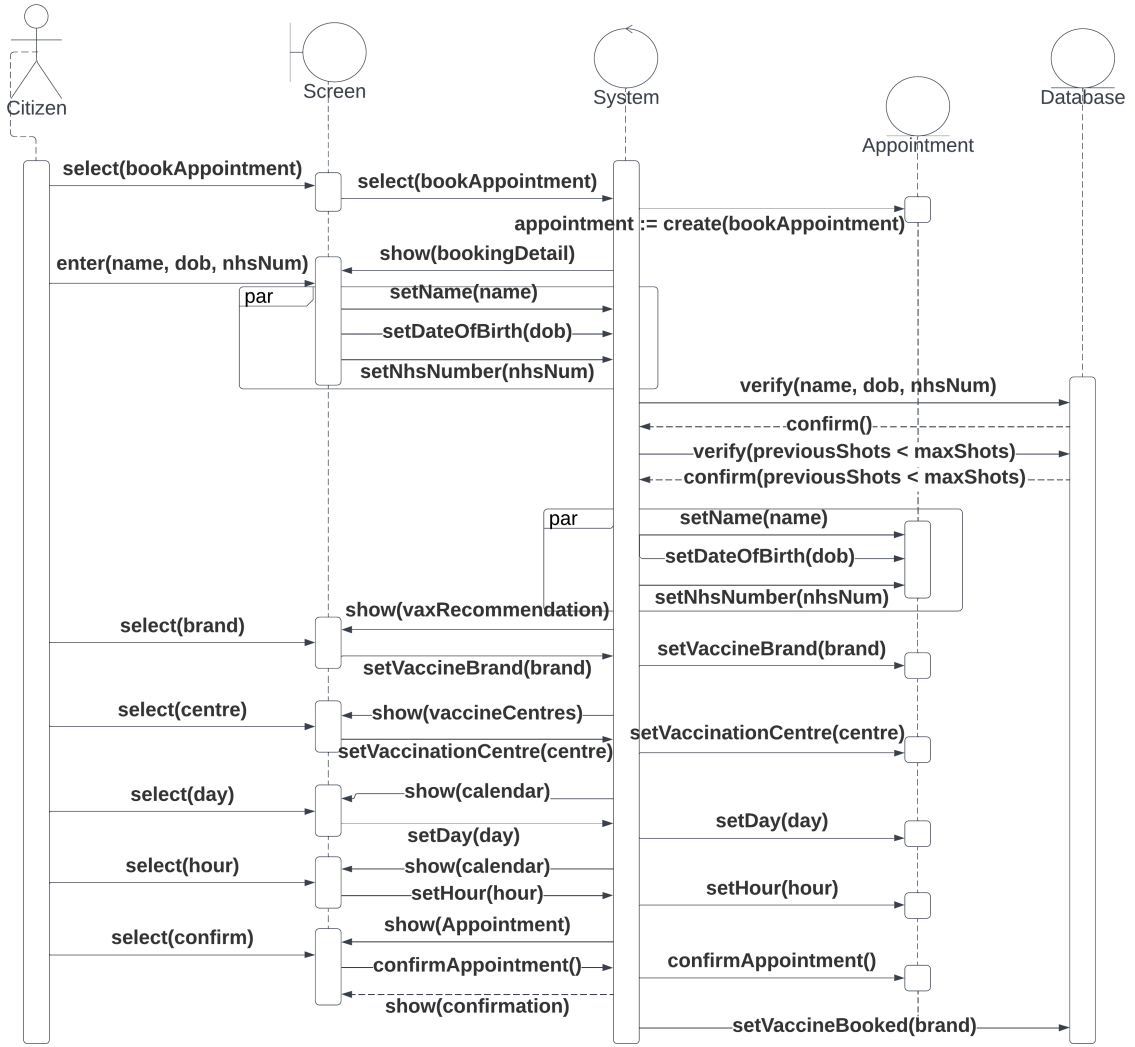

Figure 4: Sequence Diagram 2

0.8 Activity Diagram

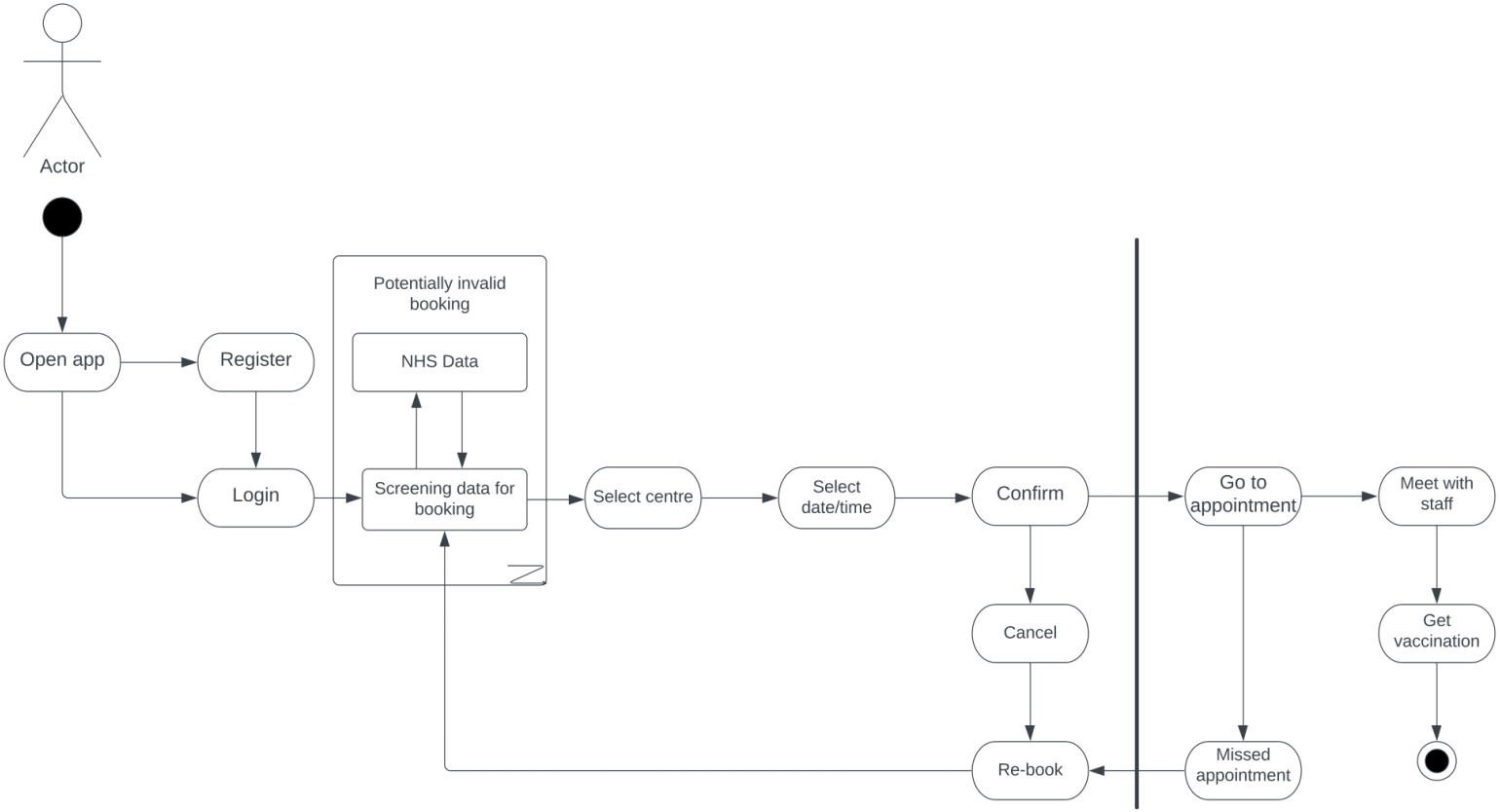

Figure 5: Activity Diagram