20VT - 2DV609 - Project Course in Software Engineering

Requirement specification document

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Course code: 2DV609

Contents

1 Topic

An Android application that implements the functionality of a medical booking system

- MEDICAL APPOINTMENT is the name of the application

2 Introduction

This is a Requirement Specification Document containing the list of stakeholders, functional and non-functional requirements and other details pertaining to the project.

3 Description

This application provides a time-saving solution to the end-customers with opportunity to book an appointment to their relevant clinic.

Team is considering a huge success of application as of its trivial, user-friendly layout. Furthermore, Team has decided to implement the application using Android Studio 3.6.2 with SDK API 15: Android 4.0.3 which covers approximately 100% of devices. A self-test for Covid-19 is planned to be implemented on first page of application to attract user attention. A message based on updated information on official link is shown after the user has completed the test.

4 Stakeholders

1. Teachers-The labels consists of sequential numbers
2. Customers/ Peers- use the application for booking
3. Manager- is responsible for generating revenue
4. Database developers and administrators are responsible for:
    - Ensuring that the application works as expected
    - keeping the system up-running
5. Medical centers books the time slot against their availability.
6. HR department is responsible for:
    - Employee health and safety
    - Hiring new staff
    - Upskilling employees
    - Payroll
    - Delivery insurance

5 Functional Requirements

1. Requirement : Registration of new members
2. Requirement : Registered members can log in to the system
3. Requirement : Members can book slot for a check-up
4. Requirement : Members can modify or delete a booking
5. Requirement : The Admin can log in to the system by providing his details

6 Non-Functional Requirements

1. Customer name and last name should only consist of letters
2. Phone number should only consist of numbers
3. Customer home address should only contain letters and numbers
4. The application should send a confirmation email to the user after a successful sign-up
5. The application contains a feature to self-test for the Covid-19 virus:
    - The self-test will help patient assess their symptoms and determine whether they are a candidate for a coronavirus disease
    - Offers guidance on when to seek medical care
    - what to do in the meantime
6. The application should send a confirmation email to the users after a booking has been made
7. The application provides a route map to the medical center
8. Usability: The android application should be easy and convenient to use

7 Checklist based Requirements analysis

Checklist for Requirements based analysis	Requirements				
	Req 1	Req 2	Req 3	Req 4	Req 5
Requirements testability	Yes	Yes	Yes	Yes	Yes
Combined requirements	No	No	No	No	No
Requirement Gold-Plating	No	No	No	No	No
Use of non-standard hardware	No	No	No	No	No
Conformance with business goals	Yes	Yes	Yes	Yes	Yes
Premature Design	Yes	Yes	Yes	Yes	Yes
Requirements realism	Yes	Yes	Yes	Yes	Yes
Requirements ambiguity	No	No	No	No	No

8 Classification on faceted approach

Classification on Faceted approach	Requirements				
	Req 1	Req 2	Req 3	Req 4	Req 5
System	Yes	Yes	Yes	Yes	Yes
User interface	Yes	Yes	Yes	Yes	Yes
Database	No	Yes	Yes	Yes	Yes
Communication	No	No	No	No	No

9 Systematic Validation of the Requirements

Requirements Validation	
Are the requirements complete?	YES
Are the requirements consistent?	YES
Are the requirements comprehensible?	YES
Are the requirements ambiguous?	NO
Is the requirements document structured?	YES
Are the requirements traceable?	YES
Does the requirements document as a whole?	YES

10 Test Cases

Requirement 1: Member Registration

Test Case ID	TC1
Test Priority (Low/Medium/ High)	High
Test Title	Successfully register a new customer
Description	Test if a new customer can register with the booking application
Pre-condition: User has opened the sign-up form	
Test Steps	1. Open the Sign-up form on the homepage of the application. 2. You are presented with empty blanks to fill in for registration. 3. Type in a valid Username 4. Provide a valid email address 5. Provide a valid personal number 6. Provide a valid password 7. Provide your house address 8. Click the Register button
Expected Result	The member is registered in the database and is presented with a confirmation message to his email address
Status (Pass/ Fail)	Pass
Comments	• The tests pass only if valid input is provided. **Example**: • The username should not contain numbers or special characters. • The email address should be valid

Requirement 2: Customers can log in to his account

Test Case ID	TC2
Test Priority (Low/Medium/ High)	High
Test Title	Verify user login with a valid username/ email address and password
Description	Test medical booking system login page
Pre-condition: User registered with the system and has a valid username and password	
Test Steps	1. Open the application and choose the sign-in button. 2. The login page is displayed 3. Provide the valid username or email address 4. Provide valid password 5. Click the login button.
Expected Result	The user should be able to login to his account successfully and is navigated to the dashboard.
Status (Pass/ Fail)	Pass
Comments	• The user is validated with the database and successfully logged in.

Requirement 3: Members can book a time slot for a checkup

Test Case ID	TC3
Test Priority (Low/Medium/ High)	High
Test Title	Book a time slot
Description	Test if a customer can book a time slot for a checkup.
Pre-condition: User has logged into his account	
Test Steps	1. Follow TC2 2. The dashboard is presented with 3 options 3. Select the 'Book' option. 4. You are presented with a calendar containing a color scheme. The calendar is shown in a weekly format along with date and time. 5. The colors represent the following ● Red for not available. ● Orange indicating that only a few slots are available. ● Green indicating that about 70% of the slots are available for booking. 6. Select an available slot by choosing the date and time of your choice. 7. After choosing the slot you are redirected to the description page. 8. Write a brief description explaining your health issue in less than 50 words. 9. Click the submit button
Expected Result	The system registers the booking and sends a message to the medical center and a confirmation email to the customer.
Status (Pass/ Fail)	Pass
Comments	None

Requirement 4: Members can modify or delete a booking

Test Case ID	TC4
Test Priority (Low/Medium/ High)	High
Test Title	Check if a member can modify or delete his booking
Description	Test if a customer can change or delete his previous booking after he is logged in to his account
Pre-condition: User has booked a vehicle previously	
Test Steps	1. Follow TC2. 2. The dashboard is presented with 3 options. 3. Select 'Modify or Delete a Booking' option. 4. From the list of the bookings, select the booking that you want to modify/delete. 5. Modify the booking by changing the date and time. 6. Delete a booking by choosing the delete button. 7. A confirmation dialog box appears. 8. Click the save changes button.
Expected Result	A particular booking is updated/ modified according to the user's requirement or it is deleted if the user chose to delete it
Status (Pass/ Fail)	Pass
Comments	• The changes made by the user are also updated in the database.

Requirement 5 : Admin/ Secretary can log in to his account

Test Case ID	TC5
Test Priority (Low/Medium/ High)	High
Test Title	Verify admin login with a valid username and password
Description	Test admin login into the medical booking system.
Pre-condition: Admin's details registered with the system and has a valid username and password	
Test Steps	1. Open the application and choose the sign-in button. 2. The login page is displayed 3. Provide a valid username or email address. 4. Provide valid password 5. Click the login button.
Expected Result	The admin should be able to login to his account successfully and is navigated to the dashboard.
Status (Pass/ Fail)	Pass
Comments	• The admin is validated with the database and successfully logged in. • The admin can change the bookings made by the users

11 Model

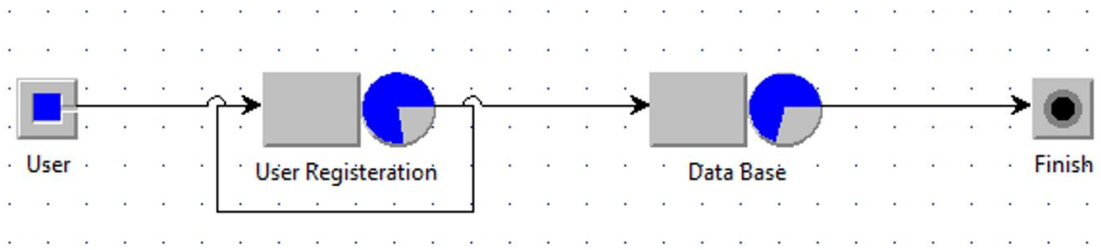

Figure 1: Graphical Queueing Network and Petri Net Simulator

11.1 Utilization Simulation Results

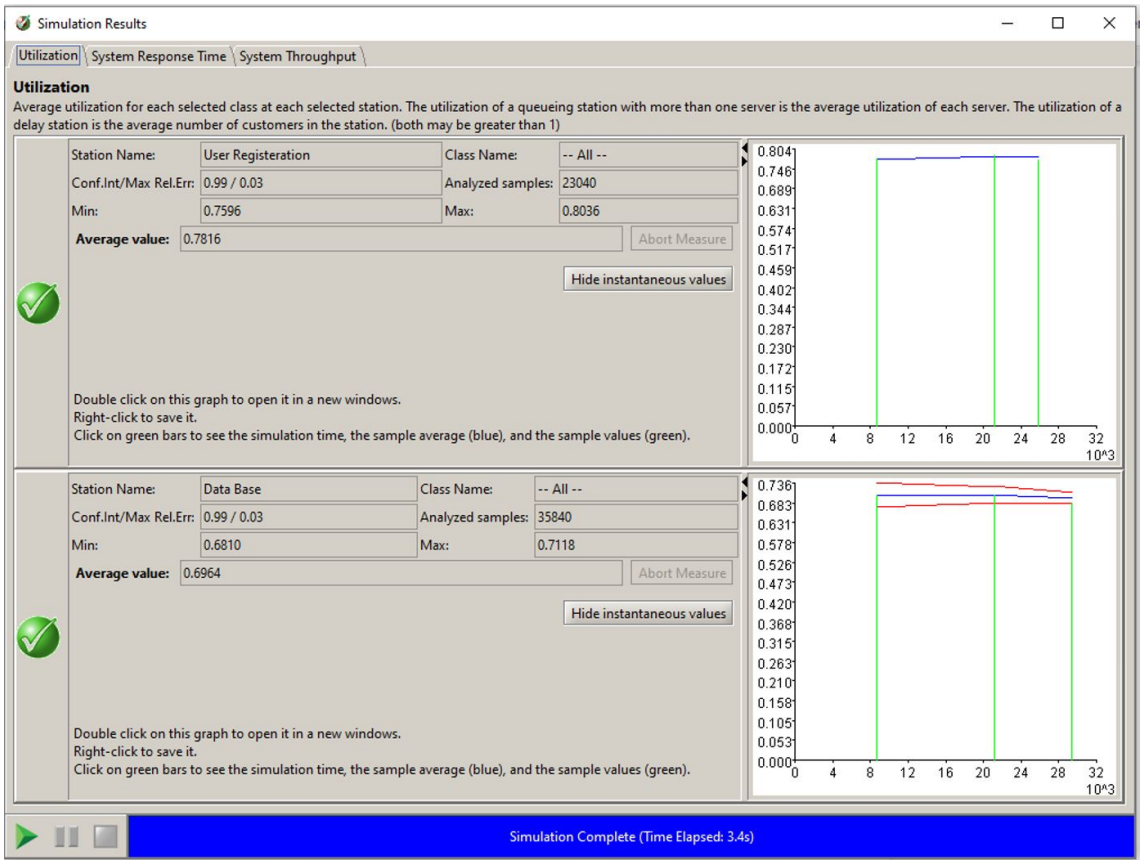

Figure 2: Simulation Results/Utilization

11.2 System Response Time Simulation Results

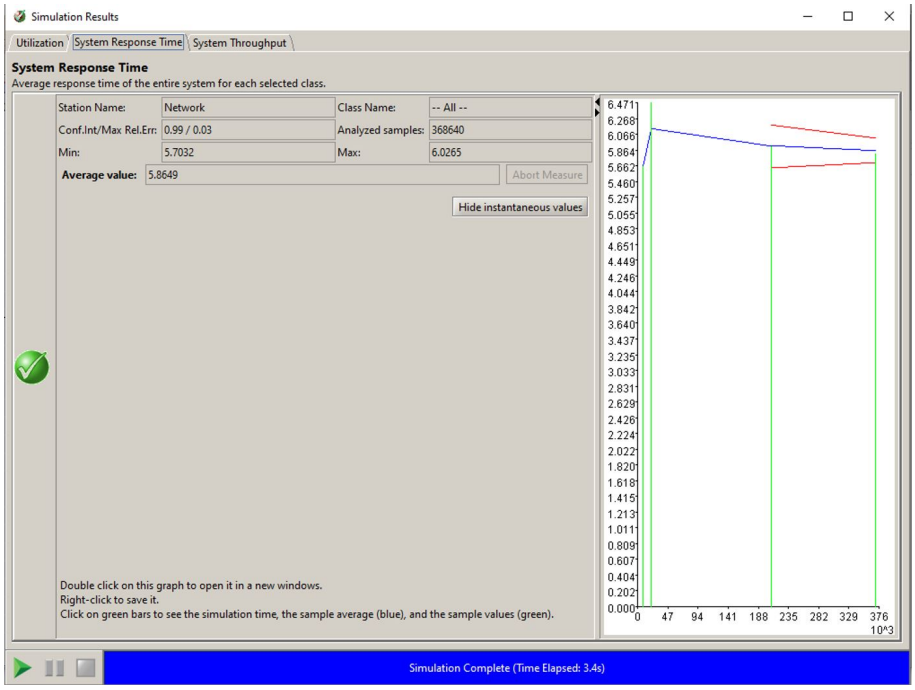

Figure 3: Simulation Results/System Response Time

11.3 System Throughput Simulation Results

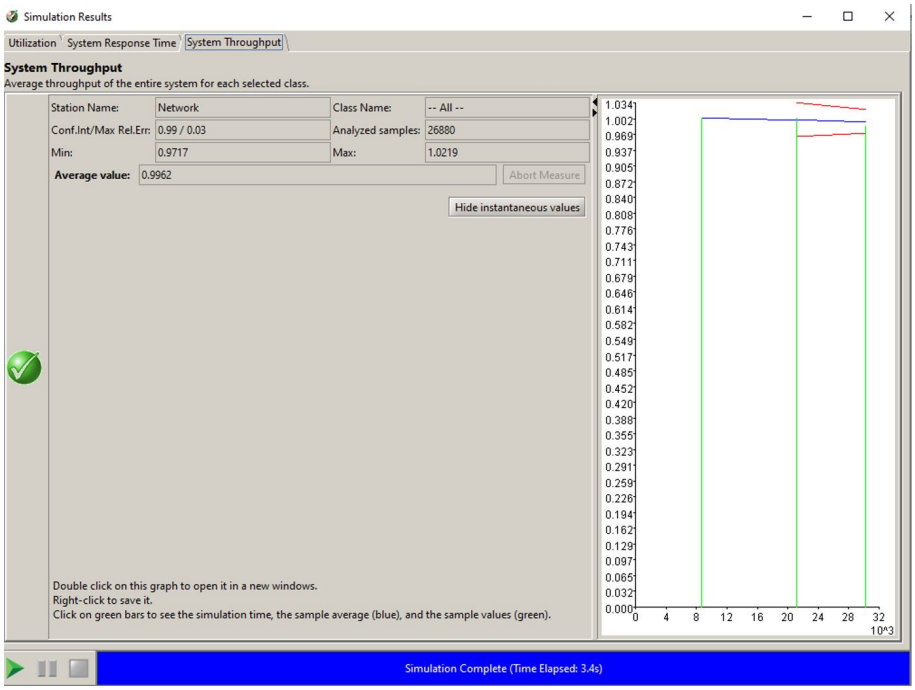

Figure 4: Simulation Results/System Throughput

12 Activity Diagram from MARTE

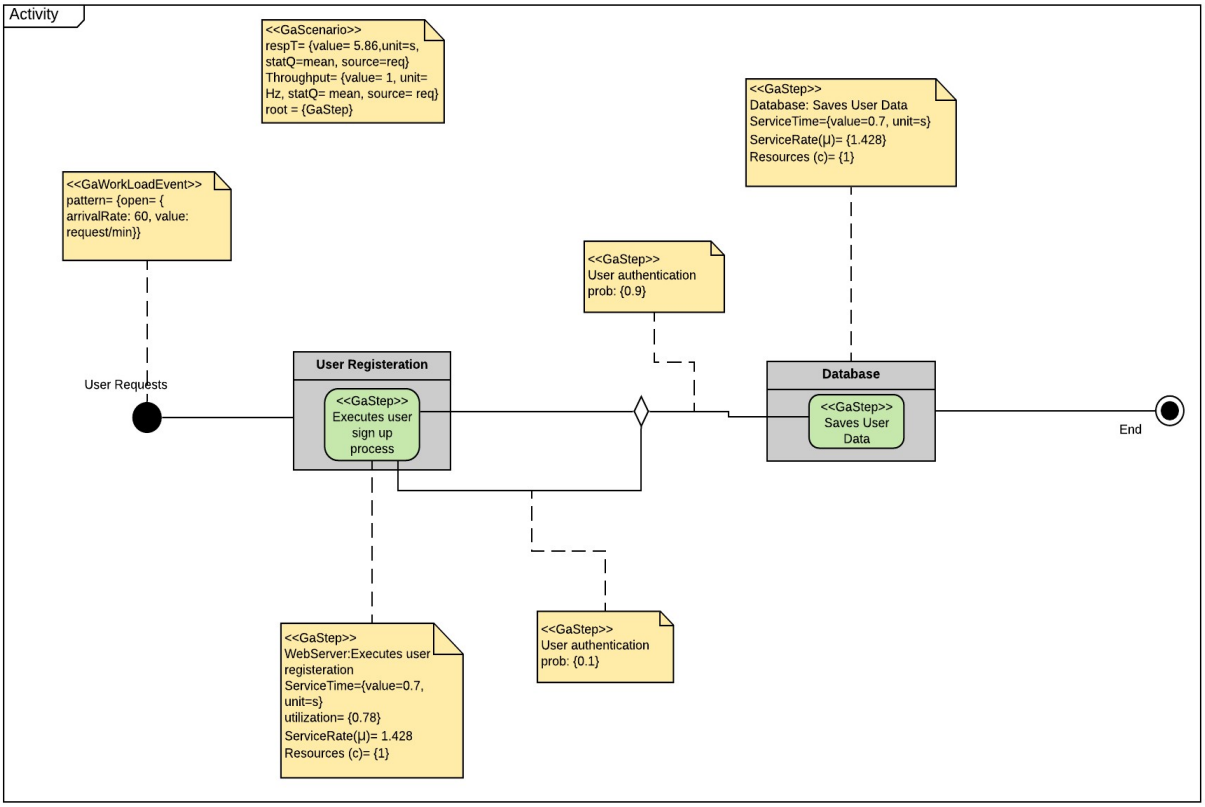

Figure 5: Activity Diagram

13 OCL Diagram

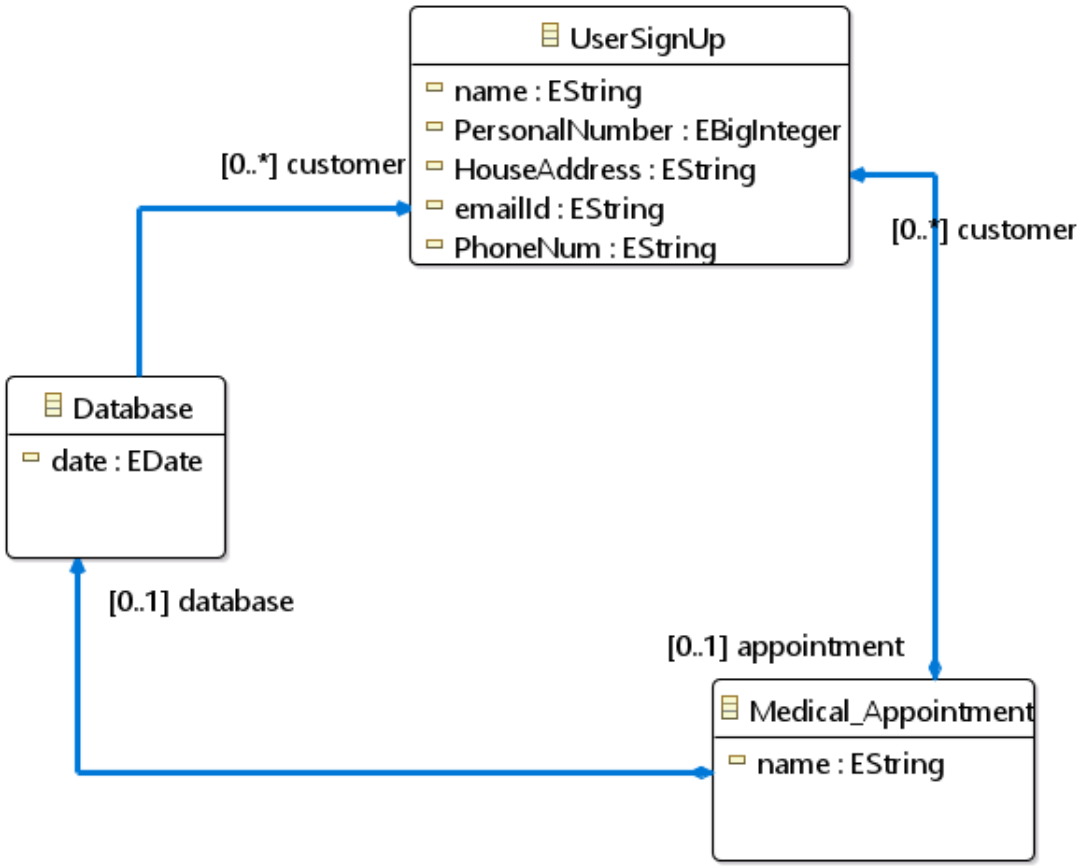

Figure 6: OCL Diagram

References

[1] *20VT 2DV608 - Software Design Linneuniversitetet växjö https://kursplan.lnu.se/kursplaner/syllabus-2DV608-1.pdf*