

CA400 – User Manual



Project Title: Mini Mental State Examination Application

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1.0 Introduction

This project is based on the Mini-Mental State Exam. Which is a 30-point questionnaire which can be used to screen for dementia in the hospital setting. The exams main purpose is to estimate the severity of a cognitive impairment in a patient and monitor the changes in a patient's cognitive ability. The exam is administered by the medical professional using a hard copy of the exam and then the doctor has to keep the copy of the exam in the patients file which can become cumbersome if the patient needs to take multiple exams.

The key idea of the project was to modernize this process by converting the examination to an application which can be used on a number of different devices such a computer in the doctors office or on a tablet such an iPad which the doctor can carry around with them if they need to visit different patients in different wards in a hospital. This in theory would reduce the time needed to conduct the exam and the time between patients as the doctor does not need a fresh copy of the exam every time as the application can initialise a fresh exam.

The application will allow for the patient to fill in their own answers if their motor functions and cognitive ability allow for this if deemed possible by the medical professional. The application also allows the medical professional to review the exam after it has been completed.

The use case of the application will be detailed in depth in the following section but here is the basic premise of using the application. The user will download and install the application on their device. The user will start the application and be greeted by the login screen from here they can register to create a doctor profile, once done they will be able to login to the application. Once they have logged in to the application they can navigate to the patient or exam homepage. From the patient homepage they can create a record for the patient which is in their care. The exam homepage allows them to select the patient and begin the exam and progress to the end. Once the exam is complete the medical professional can review the answers and determine if they are correct, if they are correct, they can tick a check box to say that they are. The application will keep track of the correct answers and update the patients record in the database

1.1 Download and Install

In order to install the application on android device you must go to this link

<https://drive.google.com/open?id=1wsyH1FsBXlsfsHAteDCKoyfZuYCCAxEG>

and download the apk file onto your device. Once the downloaded your android device will prompt you to install the application. Once this process is complete the application will launch, and you will have full access the application and the range of functions it provides.

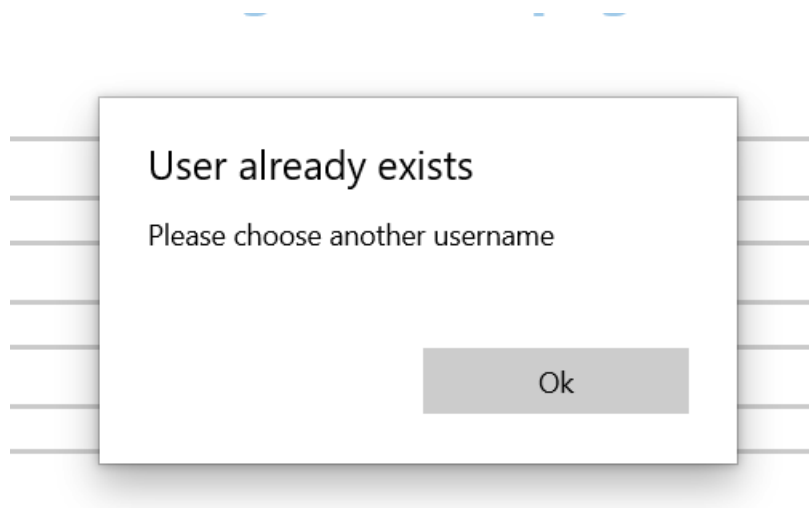
To login to the demonstration account the account username and password is "test".

1.2 Using the application

NOTE: Screenshots in this manual are taken from Windows version of the Application

1.2.1 Registering to use the application

The first step for the medical professional is to register to use our application. They click on the register button and this will bring them to a Register page. From here the medical professional is brought to a form where they will fill in their desired Username and Password and they click submit/ Once they've submitted this our backend code will check if the username and password are already in the database. If they are the user will be prompted with an alert saying they must choose a new username and password.



If there is no conflict, then the user is added to the database and an entry into the doctor table and given a doctor ID.

Registration page

Enter First Name
Enter Last Name
Enter Username
Enter Password
Confirm Password

1.2.2 Login

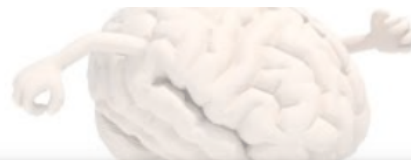
Mini-Mental State Examination



Login

Register

The above image is the Login page for our application. Here the user will enter their username and password. The entered details will be checked against the values of our database and if they match values in our database then the user will be given access to the application. If the details are incorrect then the user will be greeted with a pop up like this.



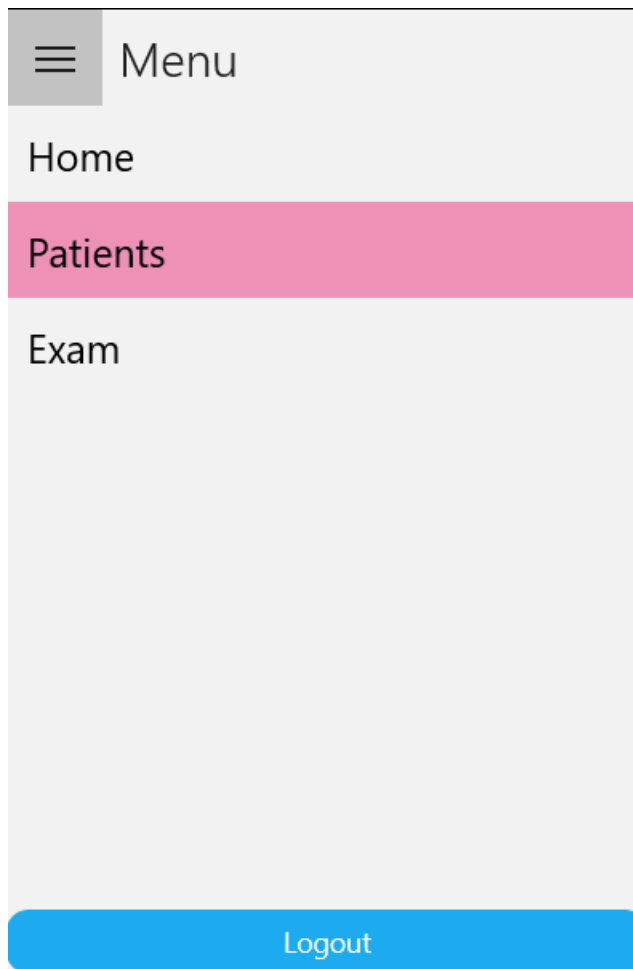
Login Fail
Incorrect Username

OK

Login


Register

1.2.3 Navigating through the application



This is the side bar navigation is how the medical professional would navigate through the application. From here they can go to the 'Home', 'Patients' and 'Exam' pages. The content of these pages will be discussed later. There is a button down the bottom of the menu for the medical professional to logout of the application. Once this is clicked the app will go back to the main login screen. This menu can be accessed throughout every page of the application

1.2.4 Adding a new patient

New Patient	Search for Patients 			
Patient ID = 14	Patient	1	01/01/0001 00:00:00	01/01/0001 00:00:00
Patient ID = 15	Patient	2	01/01/0001 00:00:00	01/01/0001 00:00:00
Patient ID = 16	Patient	3	01/01/0001 00:00:00	01/01/0001 00:00:00

The medical professional can navigate to this page from the sidebar menu which was discussed previously. From here the medical professional can view the patients in their care and they can add a new patient record from here by clicking the “New Patient” button up the top left corner. From here the medical professional is brought to this screen.

Add new Patient

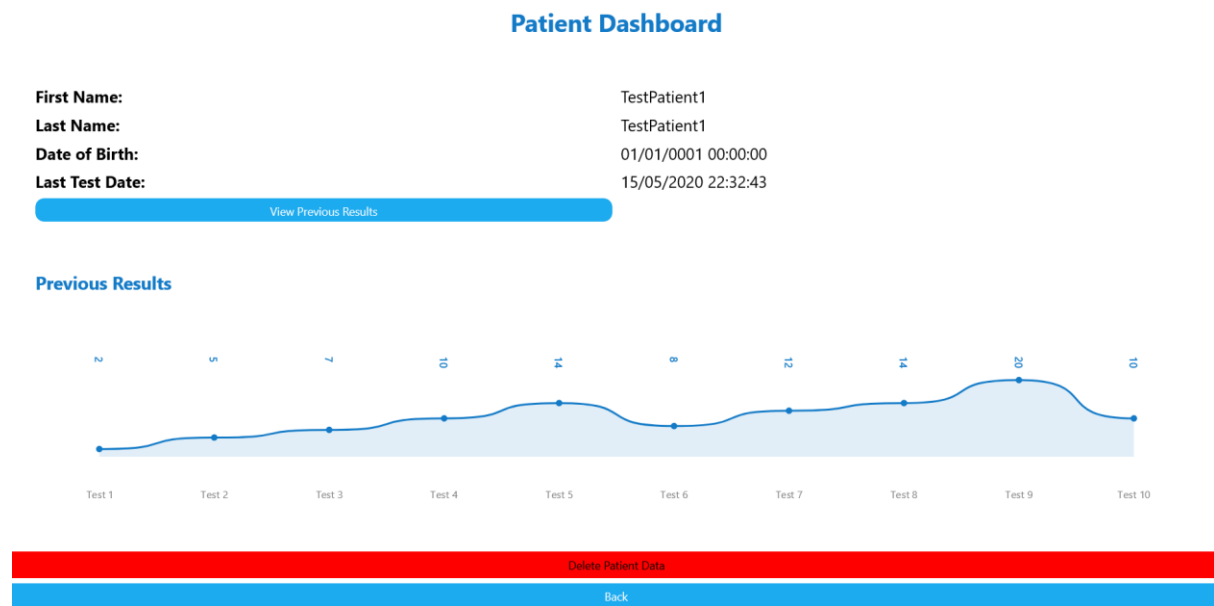
First Name		
Last Name		
Date of Birth		
15	May	2020
Save Patient		Cancel

On this screen the doctor adds patients first name and last and their date of birth. When they hit Save Patient, a new record is added to the patient table. This also creates a patient ID which a doctor can select to link the patient to them. When the patient is saved to the database the medical professional is greeted with this pop message.

Patient: Mike O. H added

OK

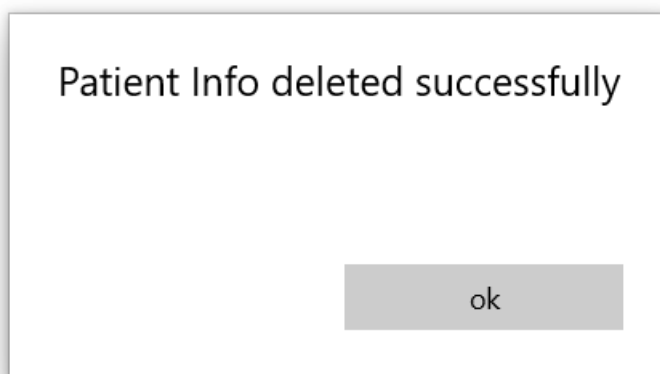
1.2.5 Viewing Patient Information



The above image is the information the Medical Professional can see when they select a patient. We display their First and Last name, their Date of Birth, and the date of their last exam if multiple exams are needed to accurately. Below the last test date there is a button to allow the medical professional the view that specific patients previous results. When click the screen that the app navigates to is explained in more detail later.

Below that we have a graph of the last results indicating the fluctuation in cognitive impairment in the patient. It shows the score the patient received and the corresponding test number. There are also 2 buttons below that. One to go back and one to the delete the patients record.

If the patient's data is deleted, then the medical professional is greeted with this pop up



1.2.6 Viewing previous results

Exam Review: TestPatient1 TestPatient1

Result ID = 2 Exam score = 2 Date Exam = 15/05/2020 23:44:10
Result ID = 3 Exam score = 5 Date Exam = 15/05/2020 23:59:20
Result ID = 5 Exam score = 7 Date Exam = 16/05/2020 11:18:46
Result ID = 7 Exam score = 10 Date Exam = 16/05/2020 12:05:27
Result ID = 8 Exam score = 14 Date Exam = 16/05/2020 12:06:59
Result ID = 9 Exam score = 8 Date Exam = 16/05/2020 12:08:13
Result ID = 10 Exam score = 12 Date Exam = 16/05/2020 12:10:01
Result ID = 11 Exam score = 14 Date Exam = 16/05/2020 12:12:30
Result ID = 12 Exam score = 20 Date Exam = 16/05/2020 12:30:14
Result ID = 13 Exam score = 10 Date Exam = 16/05/2020 12:32:55

Back

The screen showed above is the screen the application will navigate to if the user clicks the button to view the patient's previous results. The screen provides the user with an overview of all the previous tests the selected patient has completed. From here the user can click on a specific exam and see the breakdown of the patients answers and the score the patient achieved. When a specific exam is clicked the application will move to this screen.

Exam Review	
Exam Score: 5	Date Taken: 16/05/2020 14:46:55
Question	Patient Answer
Orientation	
What year is it?	2020
What month is it?	may
What day is it?	sat
What time is it?	15:45
What date is it?	16-05-20
Back	Next

On top of this screen the user can see the score the patient received in this exam and the date and time the exam was administered. Below this the medical professional can see the section heading in this case it is orientation and then on the left questions for this section. On the right are the answers which the patient gave for each question. Below this are the navigation buttons to progress through the exam.

1.2.7 Starting an exam

This is the exam section of the application. From the screenshots below it outlines the layout of the examination, the questions of the exam are displayed on the left and on the right, there is text boxes for the patient to enter the responses.

Orientation

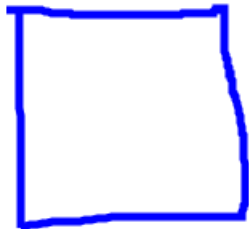
What year is it?	<input type="text"/>
What month is it?	<input type="text"/>
What day is it?	<input type="text"/>
What time is it?	<input type="text"/>
What year is it?	<input type="text"/>

Back

Next

Another example of the questions in the exam includes the ability to draw on inside an area on the screen.

Draw a Square



Back

Finish Exam

1.2.8 Correcting an exam

Immediately following the completion of the exam, the application will bring the medical professional to the section for correcting the exam. As seen below the heading is correct exam. It will also display the section the user on and the current score the patient has attained. Below this the question is displayed in bold with the patient's answer beneath this. Across from this there is a tick box which the medical professional can click to say the answer is correct. The application will then update the current score. Once the entire exam has been corrected the results and score are saved to the database.

Correct Exam

Orientation Current Score = 3

What year is it?
Patient Answer: 2020

☒

What month is it?
Patient Answer: may

☒

What day is it?
Patient Answer: saturday

☐

What time is it?
Patient Answer: 15:40

☐

What date is it?
Patient Answer: 16/05/20

☒

Back

Next