

DSW03A1

Lab Exercise 2
Weeks 04 2022



Instructions

Work through this Lab Exercise during your **Practical Sessions** for Weeks 3 and 4 of 2022.

Background (Windows-based and File Manipulation)

Recall from LU2 that a **Multi-tier Architecture** is a software architecture in which different software components, organised in tiers (layers), provide dedicated functionality. The most common occurrence of a multi-tier architecture is a 3-tier system consisting of: the **presentation layer**, the **business logic** layer as well as the data layer. Keep this mind as you engage through this exercise.

You are required to develop a staff portal application that generates an employee's email address from the given name and surname. The application must also determine the employee's age based on the supplied identification number. Save the user data in a file called **"Staff.txt"**.

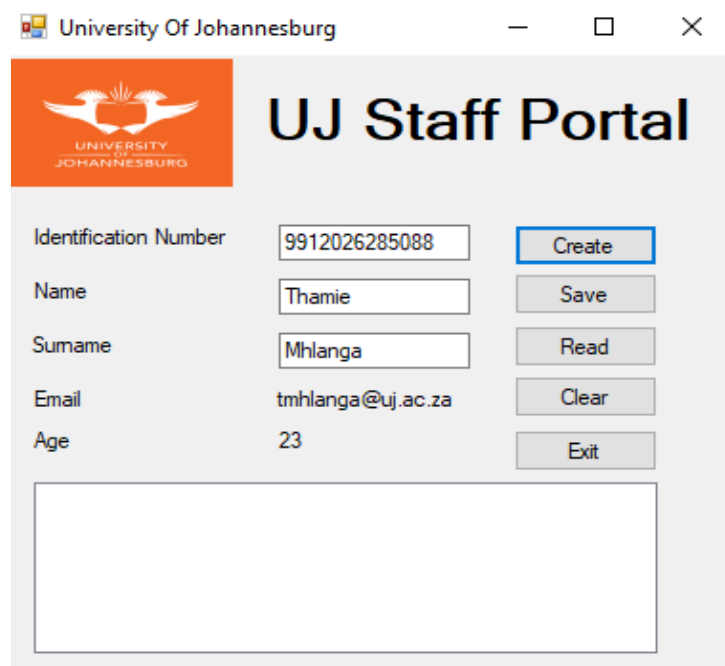
The screenshot shows a Windows application window titled "University Of Johannesburg". Inside the window, there is a header section with the university's logo on the left and the title "UJ Staff Portal" on the right. Below the header, there is a form with several input fields and buttons. The input fields are labeled "Identification Number", "Name", "Surname", "Email", and "Age". The "Identification Number" field contains the value "9912026285088". The "Name" field contains "Thamie". The "Surname" field contains "Mhlanga". The "Email" field contains "tmhlanga@uj.ac.za". The "Age" field contains "23". To the right of each input field is a button: "Create" (highlighted with a blue border), "Save", "Read", "Clear", and "Exit". At the bottom of the form, there is a large empty rectangular box.

Figure 1

University Of Johannesburg

UJ Staff Portal

Identification Number

Name

Surname

Email

Age

Create

Save

Read

Clear

Written to file.....

OK

Figure 2

University Of Johannesburg

UJ Staff Portal

Identification Number

Name

Surname

Email

Age

Create

Save

Read

Clear

Exit

Thamie Mhlanga tmhlanga@uj.ac.za 23

Figure 3

Exercise

Based on the given background do the following:

- Create a window base interface with the various GUI controls has shown in **Figure 1**
- In the **data layer**, include class' that perform file manipulation (Read and writing to a file)
- In the **logic layer**, include class' that would generate an employee's email address and also determine the age.
- The application must also store the data in the data structure into a file.
- Create a least one class library for this project.

Rubric

Criteria	Max	Mark
Three layers have been created and they work (4 marks for each)	12	
GUI Controls working well in the presentation Layer	10	
File methods in the data layer	10	
Algorithm in the business logic layer	10	
No synatx error and good programming applied	3	
TOTAL	45	

== ENDS ==