



**PECANWOOD
COLLEGE**

Prepared for Life

INFORMATION TECHNOLOGY EXAMINATION – GRADE 10

NAME: _____

GRADE: _____

DATE: 25 JULY 2023

EXAMINER: MR SC EILERTSEN

MODERATOR: MR SEEWALD

MARKS: 50 MARKS

TIME: 2 HOURS

INSTRUCTIONS:

1. This examination is made up of 4 pages. Please ensure that your paper is complete.
 2. You may use a non-programmable calculator.
 3. Note that the screen shots are part of the question and must be adhered to.
 4. You must print out your solutions at the end of the examination.
 5. Note the mark allocation and spend your time accordingly.
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Section One

Data representation and databases

In Ms Excel create a spreadsheet in which you are going to create a “database” that you could import into Ms Access much later

Your spreadsheet must have at least 8 columns (fields) but can have more if that would improve the database design. Your database must have 5 rows (records)

Scenario: The school is creating a database for the new Parent Teachers Association (PTA) . The database will have a table for pupils, one for teachers and one for the student’s legal guardian -

We are going to concentrate on the table for the legal guardian.

Here is a list of information that the school is interested in. Using this as a **guideline** you will need to **design a database**.

- Name
- Address
- Email
- Date of birth
- Do they own their own business?
- Do they have a special skill that they are willing to offer to the school? (welding, accounting, IT support, catering, organizational skills etc)
- Donation amount (Is the parent willing to make a once-off donation to the school as seed capital to get the PTA up and running)

This is a design question.

- Give the fields, and the field names, some careful thought.
- Make sure that the information in each field is atomic (smallest useful piece of information)
- Give thought to the data types you will use for each field.
- Now add five records. Make sure that the data in your records is relevant and useful.

You must print out your Excel spreadsheet in landscape at the end of the examination.

(10)

Section two

Data Validation – String handling

2.1) Create a one class Java program that uses static variables and methods.

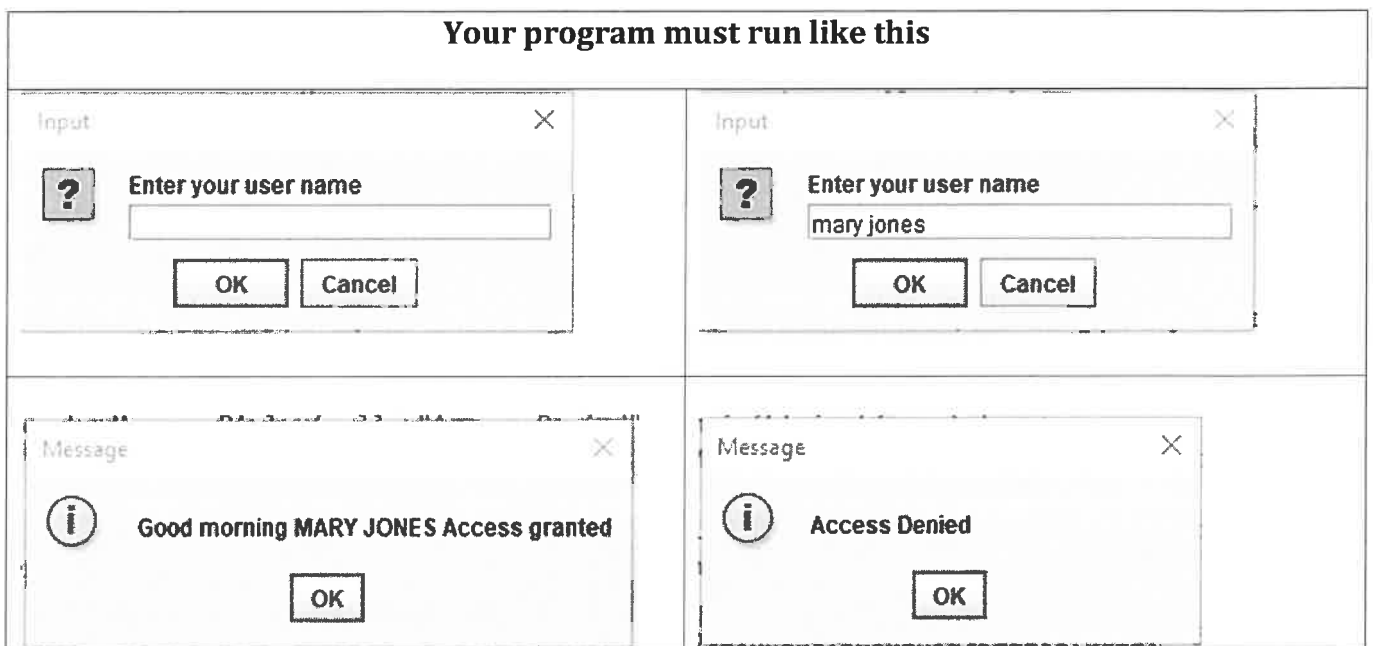
This program will allow the administrator to log into the system.

The program must ask the administrator for their name and password. Note that the name of the administrator is **"MARY JONES"** – her password is "bigTree45". NOTE the uppercase.

If the user answers correctly she should be allowed to login by getting a suitable message. The message must be "Good morning MARY JONES – Access granted" (NOTE the upper case)

If Mary Jones enters her name as "mary jones" or "Mary Jones", the login must still work.

You must have one method for the username and a separate method for the password. The main method must call the methods it needs in the correct order.



2.2) Now add an extra method which offers a welcome screen at the beginning of your program that has a staff message for the day. See below ... After the welcome message the program must continue as normal.



(20)

Section Three

Data manipulation

3.1) Create a one class Java program that uses static variables and methods.

Write a program that deliberately swops the ages of two different people – but not all the time. Your program must generate a random number between 1 and 100 (but not zero)

- If the random number is **even**, the ages will **not** be swopped around.
- If the random number is **odd**, they will be swopped around.






You must have one method to get the names and ages of the two people.

You must have one method to generate the random number and do the swapping if necessary.

You must have a final method that will print the output to screen.

The main method must call the methods it needs, in the correct order.

Your program must run like this

	
	
	<p>In this case you can see that the random number generated was odd and therefore the ages were swopped around.</p>

(20)

TOTAL: 50 Marks