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MAIN EXAMINATION

JANUARY – APRIL 2022

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER SCIENCE

REGULAR PROGRAMME

CMT 307: NET PROGRAMMING

Date: APRIL 2022	Duration: 3 Hours

INSTRUCTIONS:

i).   Answer Question ONE and any other TWO Questions.

ii). Q1g, 4a and 5b are practical questions and must be done on the PC.

iii). The project should be saved in a folder bearing appropriate student registration number.

iv). Ensure you submit your folder to the examiner at the end of exam period.

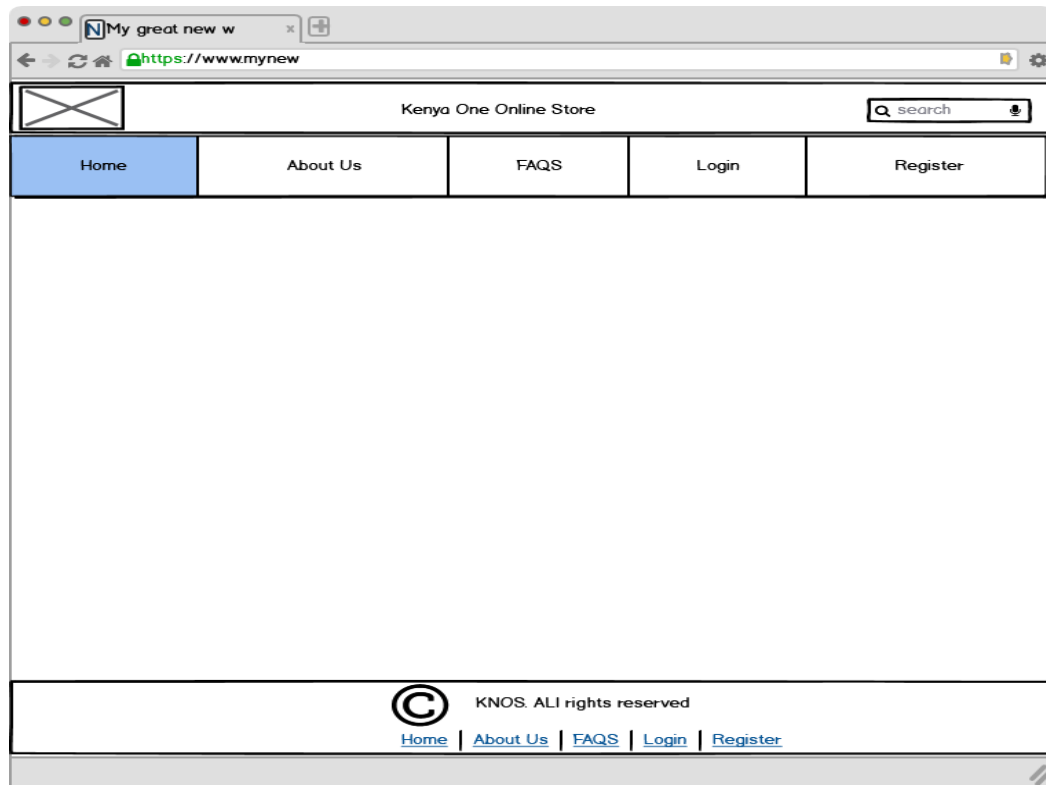v). Confirm your work before handing in your work to the examiner.

Q1.   a) Compare and contrast .NET and J2EE architectures from the following perspectives

        i).   Execution engines   (**2 marks**)

        ii). Tools support   (**2 marks**)

    b) Create a new ASP.NET project named with your registration number as the name. Add a master page to the project named "master". Add a style sheet file named "q1.css" to the project and link to the master page.

      REQUIRED:

        i).   Using CSS/HTML5 and ASP.NET. design the master page with the

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following look and feel   **[5 marks]**

ii). Create a Database name "KOOS" which contains a table named "customer" with ***email address, full names, address, gender, password*** as the table attributes. The email address must be defined as the primary key   **(3 marks)**

iii). Create a new web form known as "q1.aspx" which captures the above information. The page should use the master page created above

(3 marks)

iv). Perform validations such if email address doesn't have a **.** and **@** symbols, an error message shall be displayed by the app   **(1 mark)**

v). Perform validations such that password and confirm password values are the same   **(1 mark)**

vi). Perform validations such that a user is forced to input all the values on the form before saving them on the database   **(2 marks)**

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vii). Write a C# code which saved he above information in table customer created in Qb(ii)above. **(4 marks)**

c) When dealing with ADO.NET architecture, when is it most appropriate to use a data reader rather than a dataset

(2 marks)

d) Why is the idea of master pages so important when designing web pages using ASP.NET architecture?

(1 mark)

e) Explain the role played by the following Visual studio components
   i). Solution explorer **(1 mark)**
   ii). Project menu **(1 mark)**

e) When dealing with methods in C#, what role do arguments and parameters play **(2 marks)**

Q2. a) Microsoft CLI mechanism uses THREE mechanisms to support multiple programming languages. Discuss **TWO** of these mechanisms and how each supports cross-language development **(4 marks)**

b) Discuss **THREE** scenarios which are more convenient for .NET programmers to use datasets instead of using data readers **(3 marks)**

c) Discuss **TWO** key services provided by .NET framework class Library (FCL) to programmers

(4 marks)

d) What is the work of the following in an ASP.NET project?
   i). App_data **(1 mark)**
   ii). ContentPlaceHolder **(1 mark)**

e) Discuss **TWO** ways you can insert a CSS file when working with ASP.NET web pages **(2 marks)**

Q3. a) what benefits do .NET programmers gain by the framework adopting a stage compilation approach? **(4**

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marks)

b) Using examples of your own, discuss the two types of type casting supported by C# programming language **(3 marks)**

c) Practical question **(8 marks)**

Q4. a) To the project created in Q1, add a new page known as "q4.aspx". The page shall contain user interface which shall capture email adress and password.

The two values should be passed to a method named *studentLogin()* which
Returns login status inform of a Boolean value.

If the email address and password match the credentials in the database, the method will return a value of 1 and "Authentication Successful" message displayed for the user. The user shall be directed to another page known as "customerdashboard" which displays " welcome, **your name** " as the name appears in the database.

Otherwise, the method will return a value of zero then display error message "Authentication Failure" , clear the password and focus the cursor on the password field

REQUIRED:
   i). Design the above page **(2 marks)**
   ii). Define and implement method *studentlogin()* **(6 marks)**
   iii). Supply the calling block for the above method **(3 marks)**

b) Explain how compilation takes place for .NET applications **(4 marks)**

Q5. a) .NET framework data provider exposes a number of objects to developers. Discuss TWO of those objects and the role each plays **(4 marks)**

b) When would it be most suitable to use for each loop in your programs? developing your applications in C#? **(1 mark)**

c) Before the emergency of .NET framework, programmers were using a number of programming languages whitch had a number of shortcomings. Explain the shortcomings associated with the following

i). Visual Basic 6.0 programming language **(1 mark)**

ii). Java Programming Language **(1 mark)**

d) Add a new webpage known as "Q5" to the project created in Q1. The page should use the master page that was created in Q1 as well. The page will be used to display all student records in the table student created in Q1 using a DatagridView control.

REQUIRED:

i). Design the appropriate user interface **(2 marks)**

ii). Write appropriate C# code that fetches all records of students from student table then display them on a DatagridView control

(6 marks)

END