

INSTITIÚID TEICNEOLAÍOCHTA, SLIGEACH
INSTITUTE OF TECHNOLOGY, SLIGO



School of Engineering & Design

Head of School:

Mr Shane Fanning

Exam Series: Summer

Academic Year: 2013/2014

Course: BSc Computing- Software Development
BSc Computing-System & Networking
BSc Computing-Web Development
BSc Computing-Games Development

Stage: Semester 2

Subject: Introduction to Programming with C#

Internal Examiner(s): Vivion Kinsella

External Examiners: Derek O Reilly

Instructions to Candidates

Time Allowed: 2 hours

Number of Questions on Paper: 2

Number of Questions to be attempted: 2

Compulsory Question: n/a

Any Other Special Instructions: See Next Page

INSTRUCTIONS

You must create a single solution, with two projects, a single project for each Question

Name your solution with your student number

For example: S0001234

Ensure you put your name and student number in your code.

When finished copy your complete solution folder to your GROUP FOLDER on:

s:\student tests \vkinsella\

You may reference MSDN but no other sources.

Question 1 (50 Marks)

A lifestyle magazine wants an analysis of the demographic characteristics of its readers. The marketing department has collected survey data containing the age and gender of their readers.

This data is stored in a comma separated value file survey.txt, with the format:

Reader_Number , age , gender

A test file can be found in the folder: s:\clasees\vkinsella\examdata

Design an application that reads in this data from the file and produces a report:

- With a count of readers by the age groups: Under 20, 20-29,30-39,40-49 and 50 plus.
- The report shall also display a count of readers by gender within each of the above age groups.
- The report shall take the format of report below
- Your program shall use at least three methods plus the Main() method and make use of arrays to solve the problem.

Age group	Count	Female	Male
Under 20	20	12	8
20-29	45	35	10
30-39	34	14	20
40-49	12	10	2
50 +	5	3	2
Totals	116	74	42

Marks

Reading data from file (10)
Determine and record age range (10)
Determine and record gender (5)
Print report (10)
Use of methods (10)
Programming Style (5)

Question 2 (50 marks)

Write a project that includes the following methods. Your project will include code to test each method.

- i. Write a method

```
static string Reverse(string str)
```

That returns the string `str` reversed. For example

`Reverse("Sligo")` returns "ogilS"

(10 marks)

- ii. A car rental company charges €20.00 per day to rent a car for each of the first three days. The company charges €15.00 per day for each additional day. The minimum charge for any given rental period is €50.00. Write a method that accepts the numbers of days rental as a parameter and return the rental charge.

(10 marks)

- iii. Write the method:

```
static bool Sorted(int x, int y, int z), returning true if all the arguments are sorted, with smallest coming first.
```

(10 marks)

- iv. Write a method that returns the discount rate for a holiday. The discount rates available are listed below. Your method will have one parameter, the number of days booked.

Days Booked	Discount Rate
1-7	0%
8-14	5%
15-21	10%
22+	15%

(10 marks)

- v. Write a method that accepts a bank balance and withdrawal amount as parameters. It will update the bank balance if there are sufficient funds. Leave the balance unchanged if there are not sufficient funds.

(10 marks)