School of Engineering and Design

Head of School: Mr Shane Fanning

Exam Series: **Semester 2 - Repeat**	**Academic Year 2015/2016**

Module Title:	**Module Code:**

Introduction To Programming 2 using C#   COMP 06125

Programme Code(s):	Programme(s) Name(s)	Year(s)	FT /PT (if applicable)
SG_KSYS_B07	*BSC Systems and Networking*	*1*	*FT*
SG_KGDEV_B07	*BSC Game Development*	*1*	*FT*
SG_KWDEV_B07	*BSc Web Development and Creative Media*	*1*	*FT*
SG_KDEV_B07	*BSC Software Development*	*1*	*FT*
SG_KCOMP_H08	*BSC (Honours) Computing*	*1*	*FT*

Internal Examiner(s): Vivion Kinsella

External Examiners: Damien Costello

Instructions to Candidates

Time Allowed:	*2.5 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

1. Name the class files for each question Question1.cs and Question2.cs

2. Upload <u>both these files only</u> to the moodle link in the week starting **August 22th**.

3. It is your responsibility to ensure that the correct work is saved and uploaded correctly.

Question 1 (50 marks)

A music streaming company has a €10.00 minimum fee to use its service for up to five hours during a charging period. The company charges an additional €0.10 per hour for each additional hour or part thereof. The maximum charge for a charging period is €100.00.

The company stores the usage details of its users in a file users.txt with the format:
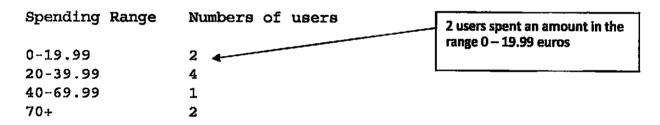
UserNumber,HoursOfStreaming

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

Develop an application that reads in this data from the file, calculates the charge to each user, and the total charge for all users and produces a report with a breakdown of the of number of users in five different spending categories. These are :

0-19.99	20-39.99	40-69.99	70+

Sample report based on data in sample file:

Spending Analysis

Spending Range   Numbers of users

0-19.99   2
20-39.99   4
40-69.99   1
70+   2

2 users spent an amount in the range 0 – 19.99 euros

Total Spend by all users : 310.00

Marks
Correctness (30)
Design/coding/data structures (15)
Readability/Documentation (5)

Question 2 (50 marks)

Write a project with a class that includes the following methods. Include a call to each in the Main method to test each method.

i. Write a method that receives a *char* value representing a product code and returns the cost of this product.

Product code	Product cost
'A'	100
'B','C','D'	200
'E'	250
Anything else	0

(10 marks)

ii. An on-line retailer allows customers to only buy its products in packages containing 8, 16 or 24 pieces. Write a method that accepts an integer, *num*, as an argument and decides whether or not it is possible to buy *num* products. Your method shall return *true* if num is a valid quantity. Otherwise the method should return *false*.

(10 marks)

iii. Write a method called FutureValue that accepts three arguments:
numberOfMonths, monthyAmount and monthyInterest of type *int, double* and *double* respectively.
It will return the balance in a savings account after monthyAmount has been saved each month for numberOfMonths months at a monthly interest rate of monthyInterest. Interest is applied to the opening balance each month.

(10 marks)

iv. Write a method to double the values of two integer arguments that are passed to it. For example if the method is called with two arguments *a* and *b* where *a* is equal to 4 and *b* is equal to 5, then after calling the method *a* will be equal to 8 and *b* will be equal to 10.

(10 marks)

v. Write a method

```
static int Search(string str, string searchString)
```

That returns the number of times the string searchString appears in the string str. For example the method call:

```
Search("c# if fun fun fun","fun") returns 3
```

(10 marks)