CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Semester 1 Examinations 2012/13

Module Title: Object-Oriented Programming 2

Module Code: **COMP7013**

School: Computing

Programme Title:
Bachelor of Science in Computing (ACCS) – Year 3
Bachelor of Science in Computing – Year 3
Bachelor of Science (Honours) in Software Development – Year 2
Bachelor of Science (Honours) in Software Development & Computer Networking – Year 2

Programme Code: **KCOME_7_Y3**
KCOMP_7_Y3
KSDEV_8_Y2
KDNET_8_Y2

External Examiner(s): **Mr Joseph Lynam**
Internal Examiner(s): **Ms D. M. Dunlea**
Mr Denis Long

Instructions: **Answer three Questions. Question 1 is mandatory.**

Duration: 2 Hours

Sitting: Winter 2012

Requirements for this examination:

Note to Candidates: Please check the Programme Title and the Module Title to ensure that you have received the correct examination paper.
If in doubt please contact an Invigilator.

Section A

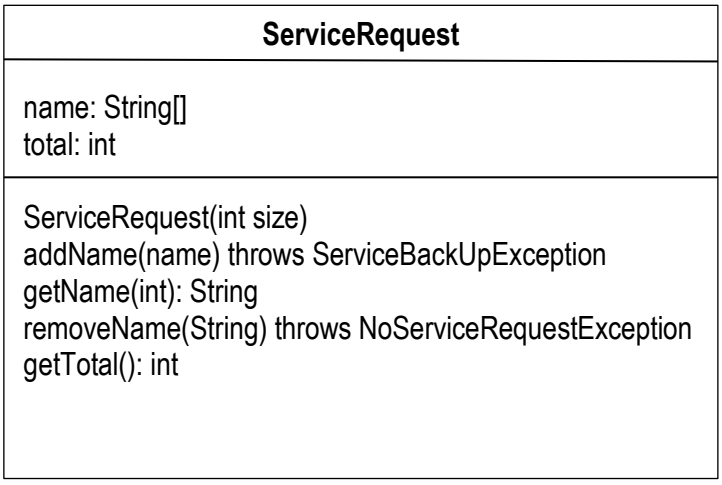
Q1.

a) Create a Duck class that holds an ID, name and age of the duck. The class allows the user to retrieve the name and age of the duck. The ID number must be unique and created when the instance of the class is created. The ID number can be returned. [10 marks]

b) What modification would you make to the Duck class in order to implement the Flyable interface on it? [4 marls]

```
public interface Flyable
{
   void fly();
}
```

c) The following is a ServiceRequest class. Write the code for this class and also for the two Exception classes included in the code. [18 marls]



d) Create a main method and write the code for the following. Add 2 names to the service request. Now remove a name that is not present. [8 marls]

Section B

Q2

a) What is a class? What is an interface? What is the difference between a class and an interface in Java? [8 marks]

b) A teacher has a list of student names (Strings) from her class. How does she sort this list? Using code explain your answer. [8 marks]

c) What if the teacher is using objects of type Student. Student contains instance variables as follows: String name, String address, int age, String course. How does she sort this list into alphabetical order? What if she wanted to sort this list using another instance variable say course or age. How is this achieved? [14 marks]

Q3

a) What is a Design Pattern? Give one example? [6 marks]

b) Show the code required to allow the user to enter a string and store that string in a text file. [9 marks]

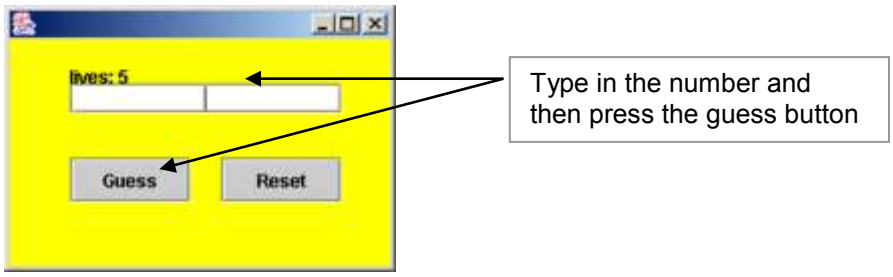
c) Describe how you would write an object to a file. What part of the object would you not want to save and how is this achieved. [8 marks]

d) Identify and briefly explain the seven basic steps in using JDBC [7 marks]

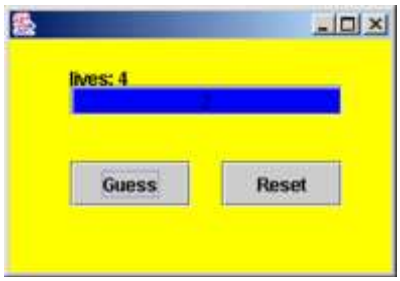
Q4

Write the code for the simple game described below:

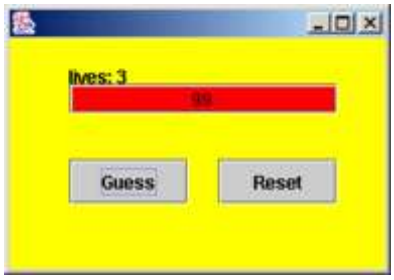
- Players must try and guess a secret number within a specified range e.g. 1 – 100.
- Output a message if the number is outside this range.
- Players are allowed five attempts at guessing the number:



- If the guess is lower than the secret number, the background colour of the text-field turns blue:



- If the guess is higher than the secret number, the background colour of the text-field turns red:



- The game finishes with either the player guessing the correct number or the player losing all their lives:

[30 marks]