

CVG Programming 2: Assessment 1

This is the first of two assessments that contribute to your mark for the Programming 2 module. Each assessment counts for 50% of the total marks for the module.

You are reminded that the work that you submit for this assessment must be entirely your own. If you copy some or all of another student's work, or write any, or all, of your program with the assistance of anyone else, you will be subject to disciplinary procedures. These may result in you being awarded zero marks for the whole assessment, or other, more severe penalties. If you allow another student to copy some or all of your work, you will be subject to the same disciplinary procedures and penalties as if you had copied the other student's work.

You must hand in your program **code files** and its corresponding vs.net project file (preferably on a CD but a floppy disc will also do) to the Music, Media and Performance School office, by 12.00 p.m. on Friday, 11th April 2008. The program code must contain a comment giving your name and a statement that the program is all your own work. You may be required to explain what your program code does, in an oral interview with me, or with another member of staff.

Assessment Introduction

The assessment is quite long and involves a variety of problems. I have included a few written questions to answer as the assessment is designed to not only to challenge your programming skills, but also to improve your knowledge of programming. The questions are to make you think and look at issues surrounding the use of programming languages and their features.

The programming itself is split into portions, with two large questions that if you are clever can be reduced through code reuse, and a few smaller challenges.

The assessment is now broken up into the following stages:

- Problems
- Exercises
- Questions

The Assessment Problem

The main assessment problem revolves around the production of a card game:

- The card game twenty-one or pontoon, if you gamble a lot or are an American you may know this game as black jack

Pontoon Game Rules

Idea of this game is to reach 21 or get as close as possible without going bust. Bust is where numerically your cards number more than 21. Numerically all cards are worth their face in value, picture cards are worth ten and the ace is worth eleven or one (player chooses which is best).

The computer is the house (casino/dealer) and competes against one to seven players. At the beginning of the round all participants are dealt two cards. These cards are visible, with the exception of the house – one of the house's cards is unseen for the moment.

Each player then gets to take additional cards (called twist) until they stop or go bust. The players go in turns to do this with the house going last. After the players have stopped the house then reveals its hidden card.

The winner is one whose score equals 21, or failing that the closest to 21. In a casino game players compete against the house, so either the house wins or one of the players win.

The card game is to be a casino match.

Writing the programs

Before writing your program it is good to stop and think about the design. Think how you are going to accomplish the task; are there any fundamentals that could be represented as a class? As a freebie a class representing a Card as a class would be ideal! Think about the elements of the game and how you are going to represent them. Now is the time to think about class structure, inheritance and to ask questions such as do I need to use abstract classes. You are marked on the quality of your code. If you need or want help during this stage ask I can give you advice.

After coming up with a design, the design doesn't have to be flawless, then its time to get started on the program. Write your code in sections, such as code one class, make sure that section works and is robust before moving on to another. In this way it becomes easier to problem solve.

The Assessment Exercises

These are small exercises that should take less than an hour each to complete and should fit easily inside a few files.

- 1) Write a small program that reads in information from a text file and prints the results out to the screen
- 2) Write a program that uses vectors and iterators to maintain a list of someone's specific items, such as games, movies or books. The program should present the user with ability to add, delete and list all stored titles

The Assessment Questions

These require only a few sentences. Answer maybe provided as a series of bullet points rather than as prose.

1) What benefits does inheritance bring to game programming?

2) What is, in programming terms, polymorphism?

Commenting and Coding Style

You are marked on your comments; you are therefore reminded that your code should be more than adequately commented.

See the resource file online for an example of the commenting you are expected to give.

Although I don't expect your coding style to match mine I do expect it to be consistent. I also expect 1 Class to be declared in 1 header and its member functions to be defined in 1 source file. For very small classes this does not apply.