Computing Project

Topic 1: Introduction

The Project Brief

Learning Outcomes

By the end of this unit of teaching and learning you will have:

- understood the requirements of this module
- read and understood the briefs of the range of projects presented
- selected a project
- downloaded the Plan Template

Introduction

The computing project is your opportunity to demonstrate the skills you have learned in your Computing Foundation.

This is a substantial piece of work that you will develop over 5 weeks.

Each student will work on a different project

Introduction

All of your IFY lessons from here on will be project lessons.

You must attend all lessons and be registered – this is essential for visa and legal reasons.

Each student will be assigned to a tutor who will mentor and support them through their project but your project should be a substantial piece of independent work.

Selecting a Project

You need to pick a project that is interesting enough to you that you will be happy to work on it for 5 weeks.

T the same time the project needs to be sufficiently academically challenging to justify it being a Foundation project.

Your tutor will work with you to confirm the project is at an appropriate level.

Project Artefacts

At the end of 5 weeks, you will produce:

- The actual project (normally a program)

You will be marked on:

- The initial project report
  30% of your final grade
- A detailed final report on the project
  50% of your final grade
- A presentation which you will give to your tutors in week 6
  20% of your final grade

Lending Library idea - Programming

Initial Project Report (30%)

Develop a proposal for a lending library management system using Java. Define one of the system's features, such as borrowing/returning books. Use a flat-file system of CSV text files for books and one for book loans. Discuss the issues of storing book and member information in CSV files.

Pupil Grading System Idea - - Programming

Initial Project Report (30%)

Develop a proposal for a pupil grading system for reading, writing, and arithmetic scores for a small primary school using Java.

Define one of the system's functionalities, performance analysis from stored highest scores stored in CSV text files.

Discuss the data structures for storing pupil information and their corresponding grades using OOP.

Initial Project Concepts - Web

Health and Fitness Advisor

A JavaScript program or website that asks for information about people's diets/habits/exercise regimes and gives advice about how to improve their BMI. If a program must involve file handling.

If a website must have html5, css3, JavaScript, and index.html for the landing page. Must have an interactive form simulating dialogue with a user on at least one issue. Can use local storage.

Initial Project Concepts - Web

Website for Building Futures

Create a website for the ISC's building futures project. The website will advertise events, manage invitations and collect donations in a simulation. Can use local storage.

Must have an interactive form and dialogue with the user over either events or donations. Must have html5, css3, JavaScript, and index.html for the landing page.

Initial Project Concepts - Web

Interactive Story

Create a web-based interactive story using JavaScript where the reader makes decisions at key junctions, and this affects the rest of the story. Can use local storage. For instance, an adventure game for younger children uses buttons on the screen representing compass points.

Must have an interactive form and dialogue with the user over either events or donations. Must have html5, css3, JavaScript, and index.html for the landing page

Note: graphics can use web resources and/or text narrative.

Initial Project Concepts - Web

Student-devised Website Development Project

Your own idea of a topic to create a website – you should aim to make a website of publishable standard with interactive features and multimedia. Replit is acceptable but you must take the risk of loss. Localhost is acceptable but the whole must be able to be given the marker to unzip and run using WampServer.

Initial Project Concepts - Database design (SQL)

A results database

Create a system that allows results to be entered and searched.

Data can also be sorted and viewed.

The front end could use PHP and phpMyAdmin.

Initial Project Concepts – Flat-file database design (No SQL)

A results “database”

Create a system that allows results to be entered and searched.

Data can also be sorted or otherwise managed and viewed.

Minimum of two files handled.

Initial Project Concepts - Database design

Student-devised Database Project

Your own idea of a database on a particular topic with a front end. You MUST already have PHP or other server-side skills.

Initial Project Concepts – Java Programming

20 questions game

Make a game in that the player thinks of an object and answers yes/no questions about it until the computer guesses what it is. Assume a young child user. Announce the options that the child decides to choose is the animal. For instance, the animal is a whale, a lion, a cow, a sheep, a dog or a cat, or a chicken. Judicious questions by the computer should deduce the correct animal if the child does not err.

The chatbot system could be applied here or just create a structure in memory that enables yes/no eliminations. You may wish to consider HashMap<Animal>.

Initial Project Concepts – Java Programming

Code Cracker

The program generates a random sequence of four integers

The player must guess the sequence in as few turns as possible

The program prints out the following clues for the player

Character A means the correct integer in the correct place
Character B means the correct integer in the wrong place
Character X means the integer is not in the sequence
An optional level of difficulty allows repeats.

Initial Project Concepts – Java Programming

Text-based RPG

Write a simple text-based Role-Playing Game where the player can make certain decisions to solve an interactive story/game adventure. The mind is the CGI!

This could be compass-based e.g., go east.

It could be set in a house with rooms. Design with a young child in mind as the player. So, no killing people!

Initial Project Concepts – Java Programming

Secret Cipher

Write a program to encrypt short sentence messages using a substitution cipher like the Ceasar where the user determines the key e.g., B.

The cipher can ignore numbers, symbols, and whitespace. Part of this project is explaining how it works when asked by the user i.e., showing the alphabets.

Initial Project Concepts – HTML, JavaScript and CSS

Student-devised Web Site Development Project

Your own idea of a project that consists mostly of writing an interactive web application.

Typically, the project will involve interaction with the user.

- Processing user selections on the client side and outputting a customised result to the user using JavaScript.
- Data may be stored in local storage
- Server-side programming is optional

Caveat to the Student Derived options

All projects must be unique within the group.