Conyers Sixth Form Transition Work

A Level Computer Science

Congratulations on your enrolment to Conyers Sixth Form; please find below, tasks that will aid your transition from GCSE to Level 3 study. Your subject teacher will check completion of this work in September.

Please refer to the attached resource

Task 1 - DESIGNING AN INTERFACE

Task 2 - CALCULATING DATA REQUIREMENTS

Task 3 - Coding Introduction

Year 12 Computing – Summer Transition Activity

User Interface Design

A good user interface which is clear and intuitive is essential for any program which is to be usable and stress free for the user. By user interface, we mean the layout of a program on screen.

Here is an example, along with the range of controls that could be used and some notes to explain.

Controls	Example User Interface	Notes
Button CheckBox CheckedListBox ComboBox DateTimePicker Label LinkLabel ListBox ListView MaskedTextBox MonthCalendar NotifyIcon NumericUpDown PictureBox ProgressBar RadioButton RichTextBox TextBox	Name * chklist Display name * Checklist Mandatory no Datatype * String Character Width 30 Initial Value Max Character 100 Precision Readonly ☐ Validation ---Select One--- Element Type ---Select One--- Unique Field ☐ Apply	- Appropriate use of controls - Drop downs to limit options - Check boxes for quick entry - An apply button. Extra things which could have been used: - Radio buttons: to limit one option for Mandatory Yes | No - Numeric Up Down to set character width. - Title? - Instructions? - Reset Button

PART 1 – DESIGNING AN INTERFACE:

Wayne is writing an application for a touch screen mobile phone to identify types of ladybird.

(a) The application will use a single interface which has

- a facility to input the size of the ladybird in mm,
- a facility to input the number of spots (0 to 30),
- a facility to input the colour of the spots (BLACK, WHITE, RED or OTHER),
- an output to show photographs and short descriptions of the types of ladybird fitting the criteria which have been input.

In the outline below, draw a design for the interface of this application.
You may annotate your design to explain how it works.

PART 2 – CALCULATING DATA REQUIREMENTS

Your program will use memory to store the details of each ladybird.

Each item stored will take up an amount of memory depending how it is stored; its data type. In the table above you can see that different data types take up differing amounts of bytes in memory.

The items you need to store are:

- Country Origin Initials (E.g. UK)
- Ladybird Size
- Number of Spots
- Colour of Spots (1 = Black, 2 = White, 3 = Red, 4 = Other)
- Ladybird Tag (Origin+ Size + Spots + Colour combined) e.g. UK1274

Type	Size
Integer (whole number)	4 bytes
Single (decimal number)	4 bytes
String (text)	N bytes (1 per char)
Char (character)	1 byte

Complete the table below, listing each item you need to store, what type you think it will be and what size it will be in bytes.

Item	Type	Size and Reason
Total bytes required for one ladybird record:		

A computer also needs to consider running overheads for the program to actually run. This is normally 10% of the total amount of data being stored.

Calculate how much memory would be needed to store 5,000 ladybird records, to include a 10% overhead. Your total should be displayed in Kilobytes (Tip: 1024 bytes in a kilobyte); inclusive of the 10% overheads added on. Show your working below.

PART 3 – Coding Introduction

You need to work through the coding tutorials at the websites below. Each tutorial, should take between 3-5 hours to complete.

As you work through each tutorial, you should produce a summary notes pack of keywords/commands and what their purpose is.

Once complete, you will need to print or screenshot the 'course completed' final page.

Task 1: HTML Tutorial https://www.codecademy.com/learn/learn-html

Task 2: JavaScript Tutorial https://www.codecademy.com/learn/introduction-to-javascript

Summary – What you will hand in…

1. Your completed user design and data requirements task.
2. Your HTML commands summary
3. Your JavaScript commands summary
4. Your evidence of completion for the HTML and JavaScript tutorials.