SIT102 – Introduction to Programming

Answers for 5.1P Structs and Enums

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Question 1: Provide some examples of different kinds of data that would be best managed in a struct. Explain how managing this data in a struct will simplify the program code.

> In 2D and 3D game engines, 2 and 3-dimensional vectors are used as structs to group XYZ coordinates together. By doing things this way, the engine can run more efficiently because it has to use less variables to store all the coordinates which at the same time, also makes the code much simpler to read and to write.

Question 2: Provide some examples of different kinds of data you could manage with an enumeration. Explain how enumerations help make code easier to understand and work with.

> Enumerations are very handy with defining things such as menu selections as well as options for settings in say a video game for example. When they are used in this way, it is made much clearer what code these selections will execute if chosen instead of merely using numbers to represent the choices.

Question 3: How does pass by reference help us work with data inside a struct? Explain how you can use this together with functions/procedures and parameters to organize the code associated with a program.

> When using pass by references on structs, the CPU is being referred to the memory location of where the struct data is being stored, instead of making a copy of the struct data and therefore using more memory and taking longer. When we use this in functions and procedures, we put an '&' in front of the parameter to tell the compiler to refer to its memory location instead of copying the data, which would be much more efficient and works better with variables that are updating in real-time.