

SIT102 – Introduction to Programming

Answers for 7.1P Arrays and Structs

Student Name: yizheng he

Student ID: 221411294

Question 1: How did the modular nature of functions, procedures, and structs help you make the changes needed to complete this program? Elaborate how the **kingdom (data) struct** correlating to **knight (data) struct** in terms of their relationship (Hint: E.G. which member field(s) of the struts are linked up?) and how do you develop the associate relationship in your 7.1P program?

The modular code makes my code easier to read and test, and the advantage of using procedure is that they are easy to execute in different places and can be used throughout the project. And structs allow for a collection of different variables under a single name.

The functions created for the knight program allowed me to further create the knight_data structure and the kingdom_data structure. The members of the structure, the update_knight in kingdom_data, for example, are linked to the knight data structure because it calls the knight data element to perform the relevant function

```
struct knight_data
{
    string name;
    int age;
    vector<string> tools;
};

struct kingdom_data
{
    string name;
    vector<knight_data> knights;
};
```

Question 2: What are the key advantage(s) to building and testing in an iterative manner? Elaborate how iterative manner helped you design, implement, and test the functions/features for the actions in **update_kingdom(...)** and **update_knight(...)** respectively. Besides, elaborate how data pass through from **update_kingdom(...)** to **update_knight(...)** with array(s) and struct(s).

The advantage of building and testing in an iterative manner is that when there are small bugs, they can be easily changed and managed, rather than when bugs are found, which requires extensive troubleshooting and changes.

The iterative approach allows functions like `update_kingdom` and `update_knight` to be created, formulating specific procedures to output the desired result. This allows instead of writing separate code under each option in the procedure, a matching condition is used and the specific procedure is run

- End of question (2) -