SIT102 – Introduction to Programming

Answers for 9.2P Data Pass by Pointers

Student Name: yizheng he
Student ID: 221411294

Based on the given start-up code snippet in Resources.zip and your own implementation addressing the task requirements, provide your answers to the following questions.

Part A:

1. There are 4 variables declared in the given start-up code snippet. Complete the following table with the correct memory addresses and the stored value accordingly for each variable. You have to add in your implementation to the given code in order to obtain all the required information for those pointer variables (i.e. variables *x* and *z*).

   Bear in mind, as discussed in the classes that those memory addresses are different from any illustration shown in this tasksheet and may also be different from your friends' workout.

Memory location of the variable (You may have different value, replace all contents here by your own value.)	Based on the given code, value stored in the variable	Variable name
940159530000	**7.99**	*d*
940159529952	**SIT102**	*s*
940159529992	7.99	*x*
940159529944	SIT192	*z*

2. Provide the execution output of your modified program by a screenshot of your Terminal, which could fully verify your answers provided in the above question.

   <Put your screenshot here>

```
M /D/code/9.2                                                    —  □  ×

yizheng he@LAPTOP-V4RN9N8K MINGW64 /D/code/9.2
$ ./9.2
Let's try pointers for data manipulation!
input your name: yi



*********************************************************************
***********
               Part A: Ordinary var d, s
*********************************************************************
***********
Ordinary var              --->  d  = 7.990000,          s  = SIT102
Ordinary var ADDRESS      --->  &d = 940159530000,      &s = 940159529952



*********************************************************************
***********
               Part A: Pointer var x, z
*********************************************************************
***********
Ordinary var              --->  x  = 7.990000,          s  = SIT102
Ordinary var ADDRESS      --->  &d = 940159529992,      &s = 940159529944

 Part A: README: variable 'x'/'z' set but not used [-Wunused-but-set-variable]
 Part A: README: To use them, start your code here to display the pointer variab
les' information onto the Terminal



*********************************************************************
***********
               Part B: Pass by value versus Pass by pointer
*********************************************************************
***********

Pass by value

Inside swap_pass_by_value
-------------------------
Parameters passed by value :    s = SIT102,              name = yi
values just after swap  :       s = yi,         name = SIT102

Back in pointer_var_info()
-------------------------
After swap call in pointer_var_info()   :      s = SIT102,          name =
yi


Pass by reference
```
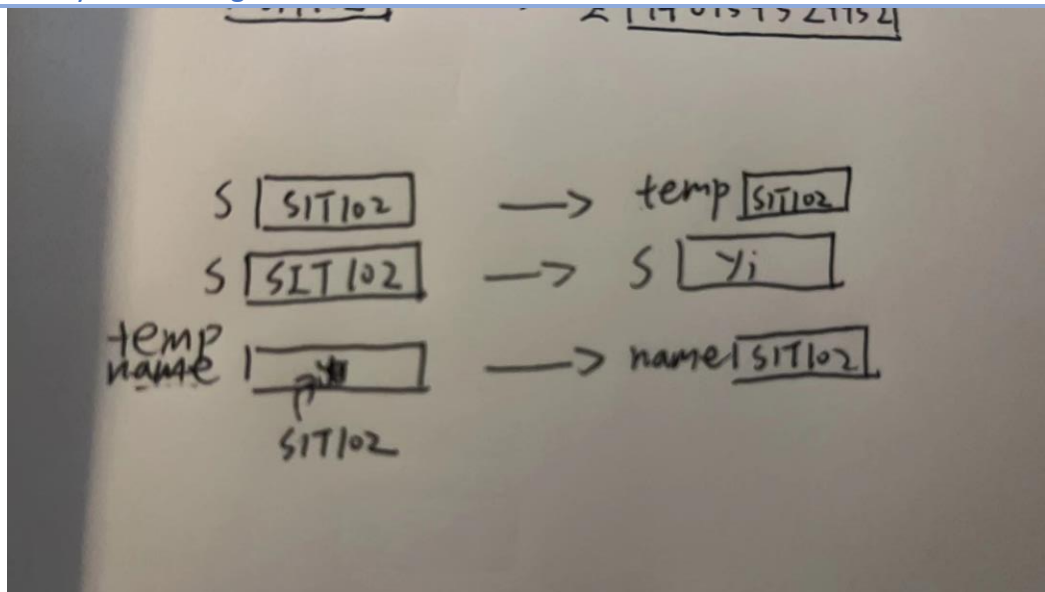
3. Depict the relationship of the above-mentioned FOUR variables - *d, s, x,* and *z* by a drawing in the style of hand execution that has been utilised since week 2 and week 9 classes.

   Note 1: Make good use of an arrow connecting memory locations (depicted by two boxes as shown) to illustrate the referencing/dereferencing direction. E.g. variable a is pointing to a memory location which stores the current value for variable b as shown below. This kind of drawing would be used by you to effectively demonstrate your understanding about relationship between variables and memory locations in Part B.

   Variable *a* | Value stored in *a* | → | Value stored in *b* | Variable *b*
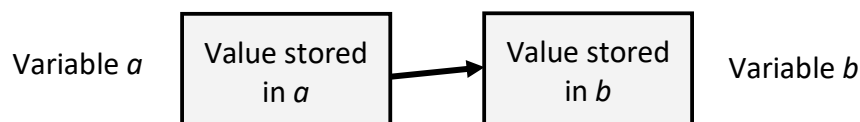
   Note 2: Make sure you have filled in correct values/names in your drawing based on the given code.

   <Put your drawing here>
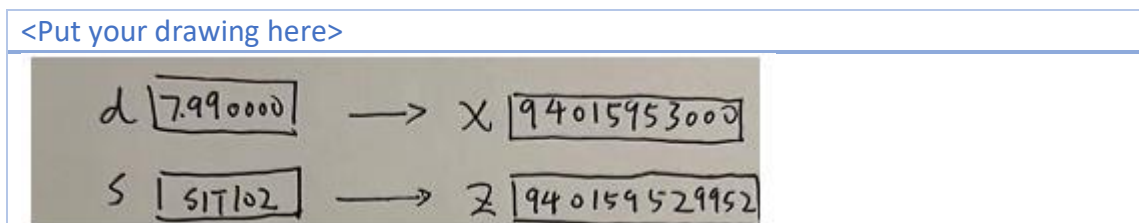
Part B:

4. Provide the execution output of your Part B workout by a screenshot of your Terminal which could throw a scene for your following answers.
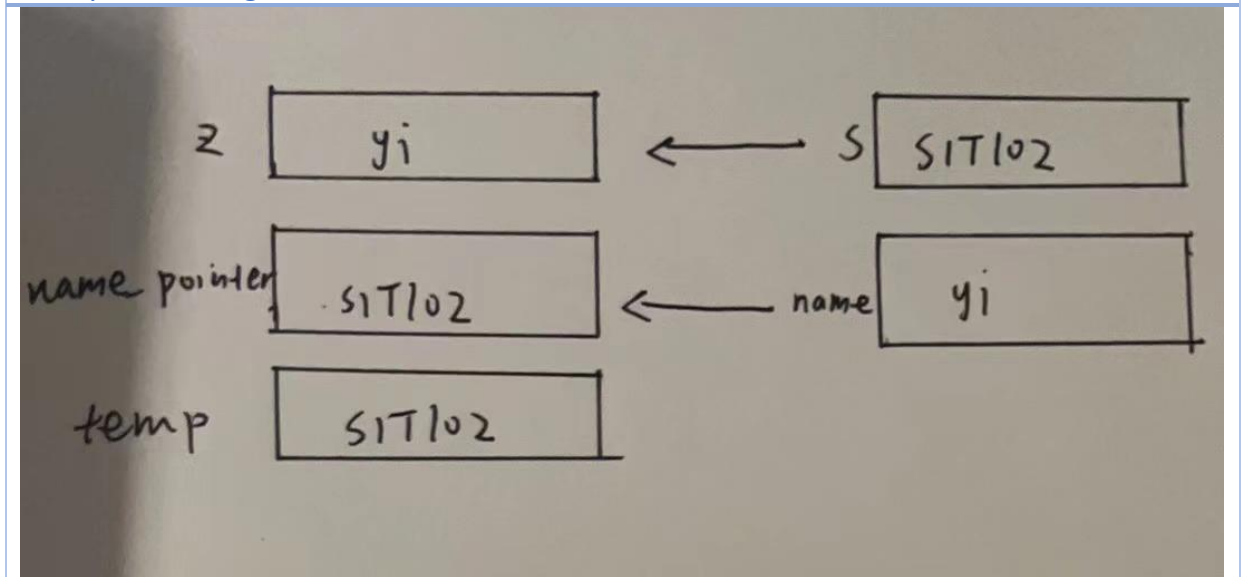
<Put your screenshot here>

5. Depict the relationship of the following THREE variables - *name*, *s*, and *temp* by a hand execution drawing for the pass-by-value scenario. Show how the values are declared/defined, processed/changed from the beginning of the program execution to the end of this swap process.

<Put your drawing here >

6. Depict the relationship of the following FIVE variables - *name, z, s, temp*, and *your newly declared pointer* by a hand execution drawing for the pass-by-pointer scenario. Show how the values are declared/defined, processed/changed from the beginning of the program execution of this swap process.

<Put your drawing here >

End of questions (6)