Chapter 2 Exercise

**Section 1**

1. List four phases of the software development process and explain what they accomplish.

The waterfall model consists of many phases. It starts with the customer request where customers ask for a program. Then is goes into the analysis phase where the programmers determine what the program will do. Then it goes into design where they determine how it will do its task. Implementation is where they start to write the program. Integration is where all the parts are brought together to function smoothly. Maintenance is the last step where programmers change things over the lifespan of the program.

2. Jack says that he will not bother with analysis and design but proceed directly to coding his programs. Why is that not a good idea?

This is not a good idea because he may have in mind something that isn’t quite what the customer wants.

**Section 2**

1. Let the variable x be "dog" and the variable y be "cat". Write the values returned by the following operations:

a. x + y **dogcat**

b. "the " + x + " chases the " + y **the dog chases the cat**

c. x \* 4 **dogdogdogdog**

2. Write a string that contains your name and address on separate lines using embedded newline characters. Then write the same string literal without the newline characters.

print(“Alex Edsell\n68826 panorama rd”)

print(“”Alex Edsell”)

print(“68826 panorama rd””)

3. How does one include an apostrophe as a character within a string literal?

\’

4. What happens when the print function prints a string literal with embedded newline characters?

It will put the rest of the text into the next line

5. Which of the following are valid variable names?

a. length **valid**

b. \_width **valid**

c. firstBase **valid**

d. 2MoreToGo **not valid**

e. halt! **valid**

6. List two of the purposes of program documentation.

Documentation helps readability for anyone who comes to it later and doesn’t know how something was accomplished.

**Section 3**

1. Which data type would most appropriately be used to represent the following data values?

a. The number of months in a year **Integer**

b. The area of a circle **Floating point**

c. The current minimum wage **Integer**

d. The approximate age of the universe (12,000,000,000 years) **Floating point**

e. Your name **Character set**

2. Explain the differences between the data types int and float.

An integer is a whole number, and a float is a way to represent a whole number that is out of the range of an int.

3. Write the values of the following floating-point numbers in Python’s scientific notation:

a. 355.76 **3.5576e2**

b. 0.007832 **7.832e-3**

c. 4.3212 **4.3212e0**

4. Consult Table 2-5 to write the ASCII values of the characters '$'and '&'.

$=36 &=38

**Section 4**

1. Let x=8 and y=2. Write the values of the following expressions:

a. x + y \* 3  **14**

b. (x + y) \* 3 **30**

c. x \*\* y **64**

d. x% y **0**

e. x/ 12.0 **0.666**

f. x// 6 **1**

2. Let x =4.66 Write the values of the following expressions:

a. round(x) **5**

b. int(x) **4**

3. How does a Python programmer round a float value to the nearest int value?

A python programmer rounds a float by using the round function.

4. How does a Python programmer concatenate a numeric value to a string value?

You can concatenate a numeric value to a string value by giving it the int or float command.

5. Assume that the variable x has the value 55. Use an assignment statement to increment the value of x by 1.

float(x+1)

**Section 5**

1. Explain the relationship between a function and its arguments.

A function is a part of code that does a task. An argument part of a function, and is a specific data value used to perform tasks.

2. The math module includes a pow function that raises a number to a given power. The first argument is the number, and the second argument is the exponent. Write a code segment that imports this function and calls it to print the values 82 and 54.

print(pow(9,2)+1)

print(pow(4,3)-10)

3. Explain how to display a directory of all of the functions in a given module.

You can display all functions of a module by importing the module and then opening it. You start by typing import(module) then dir(*module*). For example, import(math) dir(math) will give all math related functions.

4. Explain how to display help information on a particular function in a given module.

You can get information on a function by typing help(*function*).