HOMEWORK 4

Problem 1. Determine the output of the following code:

(1)
```
my_str = ’The cat in the hat’
print(my_str[0:3])
```

(2)
```
my_str = ’The cat in the hat’
print(my_str[3:7])
```

(3)
```
my_str = ’http://reddit.com/r/python’
print(my_str[17:-2])
```

(4)
```
my_str = ’http://reddit.com/r/python’
protocol = ’http://’
print(my_str[len(protocol):])
```

Problem 2. Write a function called odd_sum(a_list) that takes a list of integers as an input. The function will return the sum of all odd numbers in the list. For example

```
odd_sum([-1, 2, -4, 3, 5])
```

should return 7.

Problem 3. Write a function called count_string(a_list) that takes a list and returns the number of strings in the list. For example

```
count_string(["Hello", 4, "5", 5.5])
```

should return 2 since there are two strings in this list.

Problem 4. Write a function print_characters(s) that takes a string and prints each vowel character on a new line.

Problem 5. Write a function called first_equal_last(string) that takes a string as a string as input and returns True if the first and last characters of this string are the same. Otherwise, return False. For example,

```
first_equal_last("hello")
```

should return False while

```
first_equal_last("dad")
```

should return True.

Problem 6. Write a function called print_even_length(a_list) that takes a list of strings as input and prints out all strings with odd lengths in the list. For example

```
print_even_length(['apple', 'orange', 'banana'])
```

should print out 'apple' since it is the only string with odd length.

Problem 7. Write a function called numeric_sum(a_list) that takes a list as input and returns the sum of all numeric values in the list (a numeric value could be either an integer or a floating number). For example

```
numeric_sum(["Hello", 5, 6.1, "Apple"])
```

should return 11.1

Problem 8. Write a function print_reverse(s) that takes a string and prints each character in reverse order, starting from the last character and ending with the first. For example

```
print_reverse("test")
```

should print t, s, e,t in that order.

Problem 9. Write a function named longest_string(a_list) that takes a list of strings as input and returns the longest string from the list. If there are multiple strings of the same length, return the one that appears first. For example

```
longest_string(["Python", "is", "so", "fun", "and", "awesome"])
```

should return "awesome".

Problem 10. Write a function substring(s, start, end) that takes a string s and two indices start and end, and returns the substring of s from index start to end (inclusive). For example

```
substrings("Python is awesome", 1, 10)
```

should return "ython is a".

Problem 11. Write a function remove_first_and_last(s) that takes a string s and returns a new string with the first and last characters removed. For example

```
    remove_first_and_last("banana")
```

should return "anan". Recall that we can use a negative index to slice a string.

Problem 12. Write a program that asks a user for their name and then prints the first letter of their name.

Problem 13. Write a function called middle_character(s) that returns the middle character(s) of the string s. If the length of s is odd, return the middle character. If the length of s is even, return the two middle characters.

For example:

```
middle_character("mango")
```

should return ‘n’ and

```
middle_character("orange")
```

should return ‘an’.

Problem 14. Write a function find_index(a_string, char) that returns the index of the last occurrence of char in the string a_string. For example, find_index(“banana”, “a”) should return 5.

Problem 15. Write a function called name_end_with_y(a_list) that takes a list of names as input and returns the number of names that end with the letter y.

For example called name_end_with_y([‘Jenny’, ‘John’, ‘Amy’]) should return 2.

Problem 16. Create a function named count that accepts a string and a letter as arguments, then returns the count of that letter in the string. For example, if the function call was count(“banana”, “a”) it would return 3.

Problem 17. Write a function num_digits(n) that will return the number of digits in an integer n. Hint: Convert n into a string.

Problem 18. Write a Python function sum_of_digits(n) that takes an integer n and returns the sum of its digits. For example, sum_of_digits(132) should return 6.

Problem 19.

(1) Given area_code = 60045, format it as “area_code: 60045”.
(2) Given invoice_number = 3456, format it with the prefix ”INV-” so it appears as ”INV-3456”.
(3) Given name =“John Doe” and title = “Dr.”, format it as “Dr. John Doe”.

Problem 20. A palindrome word is a word that reads the same forwards and backward. For example, “radar”, “level”, “Dad” are palindrome while “hello” is not. Write a program that takes a word and check if it is a palindrome. Note that “Dad” works because we don’t distinguish between uppercase and lowercase characters.