HOMEWORK 4

Problem 1. Determine the output of the following code (please provie your answer as a comment).

(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 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. For this problem, you can use the `type` function to find the type of a variable.

Problem 3. 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 4. Write a function called print_odd_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_odd_length(["apple", "orange", "banana"])
```

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

Problem 5. 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. For this problem, it might be helpful to use negative indexing.

Problem 6. 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". For this problem, please review our code for the problem where we find the element with the highest square value.

Problem 7. 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 8. Write a program that asks a user for their full name in the form and then prints the first letter of their first name. For example, if I enter

```
Tung Nguyen
```

the answer should be "T".

Problem 9. 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". To find the middle index, you can use the integer quotient operator $n//2$.

Problem 10. 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 11. 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 12. 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. Hint: Convert n into a string so that you can iterate over its digits.