Assignment_1

April 15, 2024

1 Assignment 1

1. Python Program to Find a Series in an Array Consisting of Characters

[28]:
```
array = "wijwoifjasbabcjasidf"

# find a series of elements (a, b, c) in an array

for i in range(len(array)):
if array[i] == 'a':
if array[i+1] == 'b':
if array[i+2] == 'c':
print('found at', i)
break
else:
print('not found')
```

```
found at 11
```

2. Python program to find the occurrence of a particular number in an array

[4]:
```
def find_number_in_array(array, number):
for i in range(len(array)):
if array[i] == number:
return i
return -1

# example
array = [1, 2, 3, 4, 5, 6, 7, 8, 9]
number = 7
print(find_number_in_array(array, number))
```

```
6
```

3. Find the union and intersection of two arrays in Python

[5]:
```
def find_union_and_intersection(array1, array2):
union = []
intersection = []
for i in range(len(array1)):
```

```
        if array1[i] in array2:
        intersection.append(array1[i])
        union.append(array1[i])
        for i in range(len(array2)):
        if array2[i] not in array1:
        union.append(array2[i])
        return union, intersection

        # example
        array1 = [1, 2, 3, 4, 5, 6, 7, 8, 9]
        array2 = [2, 4, 6, 8, 10, 12, 14, 16]
        print(find_union_and_intersection(array1, array2))
```

```
([1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16], [2, 4, 6, 8])
```

4. Create number variables (int, float and complex) and print their types and values in Python

[6]:
```
        # creating number variables
        a = 1
        b = 2.1
        print(type(a))
        print(type(b))
```

```
<class 'int'>
<class 'float'>
```

5. Python program to print a string, extract characters from the string

[7]:
```
        def extract_characters(string):
        characters = []
        for i in range(len(string)):
        characters.append(string[i])
        return characters

        # example
        string = "Hello World!"
        print(extract_characters(string))
```

```
['H', 'e', 'l', 'l', 'o', ' ', 'W', 'o', 'r', 'l', 'd', '!']
```

6. Python Program to print words with their length of a string

[9]:
```
        def print_words_with_length(string):
        words = string.split()
        for i in range(len(words)):
        print(words[i], ":", len(words[i]))

        # example
        string = "Data science with Cyber Security"
        print_words_with_length(string)
```

```
Data : 4
science : 7
with : 4
Cyber : 5
Security : 8
```

7. Python Print EVEN length words

[10]:
```
def print_even_length_words(string):
words = string.split()
for i in range(len(words)):
if len(words[i]) % 2 == 0:
print(words[i])

# example
string = "Data science with Cyber Security"
print_even_length_words(string)
```

```
Data
with
Security
```

8. Read contents of the file using readline() method in Python

[16]:
```
!touch test.txt
! echo "Hello World!" > test.txt
```

[13]:
```
with open("test.txt", "r") as file:
data = file.read()
print(data)
```

```
Hello World!
```

9. Read contents of a file using readline() method and manipulating it in Python

[17]:
```
with open("test.txt", "r") as file:
# using readline
data = file.readline()
print(data)
```

```
Hello World!
```

10. Copy odd lines of one file to another file in Python

[21]:
```
! touch oddeven.txt
! echo "1 2 3 \n 4 5 6 \n 7 8 9" > oddeven.txt
```

[22]:
```
def print_odd_lines(file):
with open(file, "r") as file:
```

```
        data = file.readlines()
        for i in range(len(data)):
        if i % 2 == 0:
        print(data[i])

        # example
        file = "oddeven.txt"
        print_odd_lines(file)
```

```
1 2 3

7 8 9
```

11. Python program for Linear Search

[23]:
```
        def linear_search(array, number):
        for i in range(len(array)):
        if array[i] == number:
        return i
        return -1

        # example
        array = [1, 2, 3, 4, 5, 6, 7, 8, 9]
        number = 7
        print(linear_search(array, number))
```

```
6
```

12. Python program to print list elements in different ways

[24]:
```
        print("directly")
        lst = [1, 2, 3, 4, 5, 6, 7, 8, 9]
        # print list elements directly
        print(lst)
        print("for loop")
        # print list elements using for loop
        for i in range(len(lst)):
        print(lst[i])

        # print list elements using while loop

        print("while loop")
        i = 0
        while i < len(lst):
        print(lst[i])
        i += 1

        print("list comprehension")
```

```
    # print list elements using list comprehension
    print([lst[i] for i in range(len(lst))])
```

```
[1, 2, 3, 4, 5, 6, 7, 8, 9]
1
2
3
4
5
6
7
8
9
1
2
3
4
5
6
7
8
9
    [1, 2, 3, 4, 5, 6, 7, 8, 9]
```

13. Python Program for Adding, removing elements in the list

[25]:
```
    # program to add and remove elements
    lst = [1, 2, 3, 4, 5, 6, 7, 8, 9]
    print("before adding element")
    print(lst)
    # adding element to list
    lst.append(10)
    print("after adding element")
    print(lst)

    # removing element from list
    lst.remove(10)
    print("after removing element")
    print(lst)
```

```
before adding element
    [1, 2, 3, 4, 5, 6, 7, 8, 9]
after adding element
    [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
after removing element
    [1, 2, 3, 4, 5, 6, 7, 8, 9]
```