Data Science and Machine Learning Internship
(HDLC Technologies)

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WEEK - 2 Assignment

Question:

Perform the following operations using the given two arrays.
A1=[11, 33, 22, 44, 66, 55]
A2=[10, 30, 20, 40, 60, 50]

1. Extract the elements of array A1 from the index 2 to 5
2. Reshape the array A1 into (3,2) size.
3. Join the two arrays A1 and A2.
4. Split the array A1 into 3 arrays.
5. Search for a number 44 in the array A1
6. Print all the even numbers of array A1 using search option.
7. Sort the numbers of array A2.
8. Filter the odd numbers in the array A1 using filter option.

Solutions:

In [1]:
```
!pip install numpy
```

```
Requirement already satisfied: numpy in c:\users\banda\anaconda3\lib\site-packages (1.21.5)
```

In [2]:
```
import numpy as obj

A1 = obj.array([11,33,22,44,66,55])
A2 = obj.array([10,30,20,40,60,50])

print("\n Displaying A1: ", A1)
print("\n Displaying A2: ", A2)
```

```
 Displaying A1:  [11 33 22 44 66 55]

 Displaying A2:  [10 30 20 40 60 50]
```

1 Ans:

```
In [3]: print(" Extracting the elements of array A1 from the index 2 to 5: ")
        print(A1[2:6])
```

```
 Extracting the elements of array A1 from the index 2 to 5:
[22 44 66 55]
```

2 Ans:

```
In [4]: print("Reshaping the array A1 into (3,2) size: ")
        new_A1 = A1.reshape(3, 2)
        print(new_A1)
```

```
Reshaping the array A1 into (3,2) size:
[[11 33]
 [22 44]
 [66 55]]
```

3 Ans:

```
In [6]: print("Joining the two arrays A1 and A2: ")
        arr = obj.concatenate((A1, A2))
        print(arr)
```

```
Joining the two arrays A1 and A2:
[11 33 22 44 66 55 10 30 20 40 60 50]
```

4 Ans:

```
In [9]: print("Spliting the array A1 into 3 arrays: ")
        new_A = obj.array_split(A1, 3)
        print(new_A)

        print("\n new_A: ")
        print(new_A[0])
        print(new_A[1])
        print(new_A[2])
```

```
Spliting the array A1 into 3 arrays:
[array([11, 33]), array([22, 44]), array([66, 55])]

 new_A:
[11 33]
[22 44]
[66 55]
```

5 Ans:

```
In [10]: print("Searching for a number 44 in the array A1: ")
         x = obj.where(A1 == 44)
         print(x)
```

```
Searching for a number 44 in the array A1:
(array([3], dtype=int64),)
```

6 Ans:

```
In [11]: print("Printing all the even numbers of array A1 using search option: ")
         even_num = obj.where(A1 % 2 == 0)
         print(even_num)
```

```
Printing all the even numbers of array A1 using search option:
(array([2, 3, 4], dtype=int64),)
```

7 Ans:

```
In [12]: print("Sorting the numbers of array A2: ")
         Arr_2 = obj.sort(A2)
         print(Arr_2)
```

```
Sorting the numbers of array A2:
[10 20 30 40 50 60]
```

8 Ans:

```
In [13]: print("Filtering the odd numbers in the array A1 using filter option: ")

         filter_arr = (A1 % 2 != 0)
         print(filter_arr)

         odd_A1 = A1[filter_arr]
         print(odd_A1)
```

```
Filtering the odd numbers in the array A1 using filter option:
[ True  True False False False  True]
[11 33 55]
```