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Batch- C11

AIM

Study arrays and String function

Program1:

Python program to

●Read an array and display

●Append a new item to the end of the array.

●To reverse the order of the items in the array (slice operator)

●Get the length in bytes of one array item

●To append items from another array

●Remove a specified item using the index from an array

●Insert a specified item at the specified position in the array

Theory

An array is a special variable, which can hold more than one value at a time.

You can use the `for in` loop to loop through all the elements of an array.

You can use the `append()` method to add an element to an array.

You can use the `pop()` method to remove an element from the array.

You can also use the `remove()` method to remove an element from the array.

Program:

```
from array import *
arr = array('i',[]);
print("enter the size of array");
n = int(input());
for i in range(n):
    a = int(input());
    arr.append(a);
print(arr);
arr.append(7);

print(arr[::-1]);
```

```
print(arr[0])
x = len(arr)
print("size of one element of array=",arr.itemsize);

arr1 = [100, 200];
arr2 = [101, 20];
# arr1.append(arr2) # Output: [1, 2, 3, [10, 20]]
arr1.extend(arr2) #Output[100, 200, 101, 20]
print(arr1);
a = int(input("Enter the element you want to delete:"));

try:
    ind = arr1.index(a);
    arr1.remove(a);
    print("Removed!!");
except:
    print("element not found")
print(arr1);

a = int(input("Enter the element you want to Insert:"));
b = int(input("Enter the index you want to Insert:"));
try:
    arr1.insert(b, a);
    print("inserted");
except:
    print("invalid index");

print(arr1);
```

Output

```
C:\Users\Dell\Desktop\nawab\SEM 4 Practials\python>python Ex2-2003013.py
enter the size of array
5
6
5
8
2
3
array('i', [6, 5, 8, 2, 3])
array('i', [7, 3, 2, 8, 5, 6])
6
size of one element of array= 4
[100, 200, 101, 20]
Enter the element you want to delete:100
Removed!!
[200, 101, 20]
Enter the element you want to Insert:201
Enter the index you want to Insert:3
inserted
[200, 101, 20, 201]
```

Program 2:

Python program to remove prime numbers from an array. Sample input arr[]={3,4,6,9,13,14,16,17} Output arr[]={4,6,9,13,16}

Theory

The sieve of Eratosthenes is one of the most efficient ways to find all primes smaller than n when n is smaller than 10 million or so

Program:

```
lst = [None] * 1000
for i in range(2,100):
    temp=i
    j = 2*i;
    if lst[i] == None:
        while j<1000:
            lst[j] = 1;
```

```
            j = j + temp
for i in range(1000):
    if lst[i] == None:
        print(f"{i} ",end='')
lst[2] = 1;
arr = [1, 2, 3 ,4, 5, 9,12 ,10,16,17,20];
for i in arr:
    if lst[i] == None:
        arr.remove(i);

print(arr);
```

Output

```
C:\Users\Dell\Desktop\nawab\SEM 4 Practials\python>python Ex2-2003013.py
0 1 2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103 107 109 113 127 131 137 139 149 151 1
57 163 167 173 179 181 191 193 197 199 211 223 227 229 233 239 241 251 257 263 269 271 277 281 283 293 307 311 313 317 3
31 337 347 349 353 359 367 373 379 383 389 397 401 409 419 421 431 433 439 443 449 457 461 463 467 479 487 491 499 503 5
09 521 523 541 547 557 563 569 571 577 587 593 599 601 607 613 617 619 631 641 643 647 653 659 661 673 677 683 691 701 7
09 719 727 733 739 743 751 757 761 769 773 787 797 809 811 821 823 827 829 839 853 857 859 863 877 881 883 887 907 911 9
19 929 937 941 947 953 967 971 977 983 991 997 [2, 4, 9, 12, 10, 16, 20]
```

Program 3:

Python program to change all occurrences of a first character of a string to @ except for first occurrence.

Sample String : 'apple a day' Expected Result : 'apple @ d@y'

Theory

Strings in python are surrounded by either single quotation marks, or double quotation marks.

You can assign a multiline string to a variable by using three quotes.

Like many other popular programming languages, strings in Python are arrays of bytes representing unicode characters.

However, Python does not have a character data type, a single character is simply a string with a length of 1.

Square brackets can be used to access elements of the string.

To get the length of a string, use the len() function.

To check if a certain phrase or character is present in a string, we can use the keyword in.

To check if a certain phrase or character is NOT present in a string, we can use the keyword not in.

Program:

```
s = "apple a day";
flag = False;
ans = "";
for ch in range(0, len(s)):
    if ((s[ch] == "a") and (flag == True)):
        ans = ans + "@"
    elif ((s[ch] == "a") and (flag == False)):
        ans = ans + s[ch];
        flag = True;
    else:
        ans = ans + s[ch];

print(ans);
```

Output

```
C:\Users\Dell\Desktop\nawab\SEM 4 Practials\python>python Ex2-2003013.py
apple @ d@y
```

Program 4:

Python Program

●to sort group of strings into alphabetical order

●to check whether entered string is palindrome or not

Theory

A palindrome is **a word, sentence, verse, or even number that reads the same backward or forward**.

Program:

```
s = input("Enter a string:");
print(sorted(s))

rev = s[::-1];
if s == rev:
    print("yes it is palindrome");
else:
    print("its not a palindrome")
```

Output

```
C:\Users\Dell\Desktop\nawab\SEM 4 Practials\python>python Ex2-2003013.py
Enter a string:abcdcba
['a', 'a', 'b', 'b', 'c', 'c', 'd']
yes it is palindrome
```