Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 5_MCQ

Attempt : 1
Total Mark : 20
Marks Obtained : 20

Section 1 : MCQ

1. If 'a' is a dictionary with some key-value pairs, what does a.popitem() do?

Answer

Removes an arbitrary element

Status : Correct ***Marks : 1/1***

2. Fill in the code in order to get the following output.

Output:

Tuple: (1, 3, 4)

Max value: 4

t=(1,)

_____

print("Tuple:" ,t)
print("Max value:",_____)

Answer

1) t=t+(3,4)2) max(t)

Status : Correct ***Marks : 1/1***

3. What is the output of the following code?

a={1:"A",2:"B",3:"C"}
b=a.copy()
b[2]="D"
print(a)

Answer

{1: ‘A’, 2: ‘B’, 3: ‘C’}

Status : Correct ***Marks : 1/1***

4. Which of the following is a Python tuple?

Answer

(1, 2, 3)

Status : Correct ***Marks : 1/1***

5. What will be the output?

a={'B':5,'A':9,'C':7}
print(sorted(a))

Answer

[‘A’, ’B’, ’C’].

Status : Correct ***Marks : 1/1***

6. Predict the output of the following Python program

```
init_tuple_a = 1, 2, 8
init_tuple_b = (1, 2, 7)
set1=set(init_tuple_b)
set2=set(init_tuple_a)
print (set1 | set2)
print (init_tuple_a | init_tuple_b)
```

Answer

{1, 2, 7, 8}TypeError: unsupported operand type

Status : Correct ***Marks : 1/1***

7. What will be the output of the following code?

```
a=(1,2,3,4)
print(sum(a,3))
```

Answer

13

Status : Correct ***Marks : 1/1***

8. Which of the following statements is used to create an empty tuple?

Answer

( )

Status : Correct ***Marks : 1/1***

9. What will be the output for the following code?

```
a=(1,2,3)
b=('A','B','C')
c=zip(a,b)

print(c)
```

```
print(tuple(c))
```

Answer

((1, 'A'), (2, 'B'), (3, 'C'))

Status : Correct ***Marks : 1/1***

10. What is the output of the following code?

```
a={"a":1,"b":2,"c":3}
b=dict(zip(a.values(),a.keys()))
print(b)
```

Answer

{1: ‘a’, 2: ‘b’, 3: ‘c’}

Status : Correct ***Marks : 1/1***

11. What is the output of the below Python code?

```
list1 = [1, 2, 3]
list2 = [5, 6, 7]
list3 = [10, 11, 12]
set1 = set(list2)
set2 = set(list1)
set1.update(set2)
set1.update(list3)
print(set1)
```

Answer

{1, 2, 3, 5, 6, 7, 10, 11, 12}

Status : Correct ***Marks : 1/1***

12. What will be the output of the following program?

```
set1 = {1, 2, 3}
set2 = set1.copy()
set2.add(4)
```

print(set1)

Answer

{1, 2, 3}

Status : Correct ***Marks : 1/1***

13. Suppose t = (1, 2, 4, 3), which of the following is incorrect?

Answer

t[3] = 45

Status : Correct ***Marks : 1/1***

14. Which of the statements about dictionary values is false?

Answer

Values of a dictionary must be unique

Status : Correct ***Marks : 1/1***

15. What will be the output for the following code?

```
t1 = (1, 2, 4, 3)
t2 = (1, 2, 3, 4)
print(t1 < t2)
```

Answer

False

Status : Correct ***Marks : 1/1***

16. Which of the following isn't true about dictionary keys?

Answer

Keys must be integers

Status : Correct ***Marks : 1/1***

17. Set s1 = {1, 2, 4, 3} and s2 = {1, 5, 4, 6}, find s1 & s2, s1 - s2, s1 | s2 and s1 ^ s2.

Answer

s1&s2 = {1, 4}s1-s2 = {2, 3}s1^s2 = {2, 3, 5, 6}s1|s2 = {1, 2, 3, 4, 5, 6}

Status : Correct ***Marks : 1/1***

18. What is the result of print(type({}) is set)?

Answer

False

Status : Correct ***Marks : 1/1***

19. What is the output of the following?

```
set1 = {10, 20, 30, 40, 50}
set2 = {60, 70, 10, 30, 40, 80, 20, 50}
print(set1.issubset(set2))
print(set2.issuperset(set1))
```

Answer

TrueTrue

Status : Correct ***Marks : 1/1***

20. What is the output of the following code?

```
a=(1,2,(4,5))
b=(1,2,(3,4))
print(a<b)
```

Answer

False

Status : Correct ***Marks : 1/1***

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Section 1 : MCQ

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Removes an arbitrary element

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Output:

Tuple: (1, 3, 4)

Max value: 4

t=(1,)

_____

print("Tuple:" ,t)
print("Max value:",_____)

Answer

1) t=t+(3,4)2) max(t)

Status : Correct ***Marks : 1/1***

3. What is the output of the following code?

a={1:"A",2:"B",3:"C"}
b=a.copy()
b[2]="D"
print(a)

Answer

{1: ‘A’, 2: ‘B’, 3: ‘C’}

Status : Correct ***Marks : 1/1***

4. Which of the following is a Python tuple?

Answer

(1, 2, 3)

Status : Correct ***Marks : 1/1***

5. What will be the output?

a={'B':5,'A':9,'C':7}
print(sorted(a))

Answer

[‘A’, ’B’, ’C’].

Status : Correct ***Marks : 1/1***

6. Predict the output of the following Python program

```
init_tuple_a = 1, 2, 8
init_tuple_b = (1, 2, 7)
set1=set(init_tuple_b)
set2=set(init_tuple_a)
print (set1 | set2)
print (init_tuple_a | init_tuple_b)
```

Answer

{1, 2, 7, 8}TypeError: unsupported operand type

Status : Correct ***Marks : 1/1***

7. What will be the output of the following code?

```
a=(1,2,3,4)
print(sum(a,3))
```

Answer

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Status : Correct ***Marks : 1/1***

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Answer

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9. What will be the output for the following code?

```
a=(1,2,3)
b=('A','B','C')
c=zip(a,b)

print(c)
```

```
print(tuple(c))
```

Answer

((1, 'A'), (2, 'B'), (3, 'C'))

Status : Correct ***Marks : 1/1***

10. What is the output of the following code?

```
a={"a":1,"b":2,"c":3}
b=dict(zip(a.values(),a.keys()))
print(b)
```

Answer

{1: ‘a’, 2: ‘b’, 3: ‘c’}

Status : Correct ***Marks : 1/1***

11. What is the output of the below Python code?

```
list1 = [1, 2, 3]
list2 = [5, 6, 7]
list3 = [10, 11, 12]
set1 = set(list2)
set2 = set(list1)
set1.update(set2)
set1.update(list3)
print(set1)
```

Answer

{1, 2, 3, 5, 6, 7, 10, 11, 12}

Status : Correct ***Marks : 1/1***

12. What will be the output of the following program?

```
set1 = {1, 2, 3}
set2 = set1.copy()
set2.add(4)
```

print(set1)

Answer

{1, 2, 3}

Status : Correct ***Marks : 1/1***

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15. What will be the output for the following code?

```
t1 = (1, 2, 4, 3)
t2 = (1, 2, 3, 4)
print(t1 < t2)
```

Answer

False

Status : Correct ***Marks : 1/1***

16. Which of the following isn't true about dictionary keys?

Answer

Keys must be integers

Status : Correct ***Marks : 1/1***

17. Set s1 = {1, 2, 4, 3} and s2 = {1, 5, 4, 6}, find s1 & s2, s1 - s2, s1 | s2 and s1 ^ s2.

Answer

s1&s2 = {1, 4}s1-s2 = {2, 3}s1^s2 = {2, 3, 5, 6}s1|s2 = {1, 2, 3, 4, 5, 6}

Status : Correct ***Marks : 1/1***

18. What is the result of print(type({}) is set)?

Answer

False

Status : Correct ***Marks : 1/1***

19. What is the output of the following?

```
set1 = {10, 20, 30, 40, 50}
set2 = {60, 70, 10, 30, 40, 80, 20, 50}
print(set1.issubset(set2))
print(set2.issuperset(set1))
```

Answer

TrueTrue

Status : Correct ***Marks : 1/1***

20. What is the output of the following code?

```
a=(1,2,(4,5))
b=(1,2,(3,4))
print(a<b)
```

Answer

False

Status : Correct ***Marks : 1/1***

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 5_PAH

Attempt : 1
Total Mark : 60
Marks Obtained : 60

Section 1 : Coding

1. Problem Statement

Jordan is creating a program to process a list of integers. The program should take a list of integers as input, remove any duplicate integers while preserving their original order, concatenate the remaining unique integers into a single string, and then print the result.

Help Jordan in implementing the same.

Input Format

The input consists of space-separated integers representing the elements of the set.

Output Format

The output prints a single integer formed by concatenating the unique integers

from the input in the order they appeared.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 11 11 33 50

Output: 113350

Answer

```
from collections import Counter
a = list(map(int,input().split()))
a = Counter(a)
for i in a.keys():
    print(i,end="")
```

Status : Correct ***Marks : 10/10***

2. Problem Statement

Tom wants to create a dictionary that lists the first n prime numbers, where each key represents the position of the prime number, and the value is the prime number itself.

Help Tom generate this dictionary based on the input she provides.

Input Format

The input consists of an integer n, representing the number of prime numbers Tom wants to generate.

Output Format

The output displays the generated dictionary where each key is an integer from 1 to n, and the corresponding value is the prime number.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 4

Output: {1: 2, 2: 3, 3: 5, 4: 7}

Answer

```
n = int(input())
d = {}
p=[]
k=0
i=2
while(k<n):
    f=1
    for j in range(2,i):
        if i%j==0:
            f=0
            break
    if f:
        p.append(i)
        k+=1
    i+=1
for i in range(n):
    d[(i+1)]=p[i]
print(d)
```

Status : Correct ***Marks : 10/10***

3. Problem Statement

Sophia is organizing a list of event IDs representing consecutive days of an event. She needs to group these IDs into consecutive sequences. For example, if the IDs 3, 4, and 5 appear consecutively, they should be grouped.

Write a program that helps Sophia by reading the total number of event IDs and the IDs themselves, then display each group of consecutive IDs in tuple format.

Input Format

The first line of input consists of an integer n, representing the number of event IDs.

The next n lines contain integers representing the event IDs, where each integer corresponds to an event ID.

Output Format

The output should display each group of consecutive event IDs in a tuple format. Each group should be printed on a new line, and single event IDs should be displayed as a single-element tuple.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 3
1
2
3
Output: (1, 2, 3)

Answer

```
n = int(input())
l=[]
for i in range(n):
    e = int(input())
    l.append(e)
r=[]
temp = [l[0]]
for i in range(1,n):
    if l[i] == l[i-1] + 1:
        temp.append(l[i])
    else:
        r.append(tuple(temp))
        temp = [l[i]]
r.append(tuple(temp))
for i in r:
    if len(i) == 1:
        print(f"({i[0]})")
    else:
```

```
print(i)
```

Status : Correct ***Marks : 10/10***

4. Problem Statement

Mia is organizing a list of integers into a series of pairs for his new project. She wants to create pairs of consecutive integers from the list. The last integer should be paired with None to complete the series. The pairing happens as follows: ((Element 1, Element 2), (Element 2, Element 3)..... (Element n, None)).

Your task is to help Henry by writing a Python program that reads a list of integers, forms these pairs, and displays the result in tuple format.

Input Format

The first line of input consists of an integer n, representing the number of elements in the tuple.

The second line of input contains n space-separated integers, representing the elements of the tuple.

Output Format

The output displays a tuple containing pairs of consecutive integers from the input. The last integer in the tuple is paired with 'None'.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 3
5 10 15
Output: ((5, 10), (10, 15), (15, None))

Answer

```
n = int(input())
a = list(map(int,input().split()))
```

```
r = []
for i in range(n-1):
    r.append(tuple((a[i],a[i+1])))
r.append(tuple((a[n-1],None)))
print(tuple(r))
```

Status : Correct ***Marks : 10/10***

5. Problem Statement

Maya wants to create a dictionary that maps each integer from 1 to a given number n to its square. She will use this dictionary to quickly reference the square of any number up to n.

Help Maya generate this dictionary based on the input she provides.

Input Format

The input consists of an integer n, representing the highest number for which Maya wants to calculate the square.

Output Format

The output displays the generated dictionary where each key is an integer from 1 to n, and the corresponding value is its square.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 5

Output: {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}

Answer

```
n=int(input())
d={}
for i in range(1,n+1):
    d[i]=i*i
print(d)
```

Status : Correct ***Marks : 10/10***

6. Problem Statement

Rishi is working on a program to manipulate a set of integers. The program should allow users to perform the following operations:

Find the maximum value in the set.Find the minimum value in the set.Remove a specific number from the set.

The program should handle these operations based on user input. If the user inputs an invalid operation choice, the program should indicate that the choice is invalid.

Input Format

The first line contains space-separated integers that will form the initial set. Each integer x is separated by a space.

The second line contains an integer ch, representing the user's choice:

- 1 to find the maximum value
- 2 to find the minimum value
- 3 to remove a specific number from the set

If ch is 3, the third line contains an integer n1, which is the number to be removed from the set.

Output Format

The first line of output prints the original set in descending order.

For choice 1: Print the maximum value from the set.

For choice 2: Print the minimum value from the set.

For choice 3: Print the set after removing the specified number, in descending order.

For invalid choices: Print "Invalid choice".

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 1 2 3 4 5
1
Output: {5, 4, 3, 2, 1}
5

Answer

```
l = list(map(int,input().split()))
c = int(input())
l = sorted(l,reverse = True)
print("{",end='')
for i in range(len(l)):
    print(l[i],end='')
    if(len(l)!=(i+1)):
        print(", ",end='')
print("}")
if(c==1):
    print(max(l))
elif(c==2):
    print(min(l))
elif(c==3):
    k = int(input())
    l = list(i for i in l if i != k)
    print("{",end='')
    for i in range(len(l)):
        print(l[i],end='')
        if(len(l)!=(i+1)):
            print(", ",end='')
    print("}")
else:
    print("Invalid choice")
```

Status : Correct ***Marks : 10/10***

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REC_Python_Week 5_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 40

Section 1 : Coding

1. Problem Statement

Riley is analyzing DNA sequences and needs to determine which bases match at the same positions in two given DNA sequences. Each DNA sequence is represented as a tuple of integers, where each integer corresponds to a DNA base.

Your task is to write a program that compares these two sequences and identifies the bases that match at the same positions and print it.

Input Format

The first line of input consists of an integer n, representing the size of the first tuple.

The second line contains n space-separated integers, representing the elements of the first DNA sequence tuple.

The third line of input consists of an integer m, representing the size of the second tuple.

The fourth line contains m space-separated integers, representing the elements of the second DNA sequence tuple.

Output Format

The output is a space-separated integer of the matching bases at the same positions in both sequences.

Refer to the sample output for format specifications.

Sample Test Case

Input: 4
5 1 8 4
4
4 1 8 2

Output: 1 8

Answer

```
n = int(input())
a = list(map(int,input().split()))
m = int(input())
b = list(map(int,input().split()))
for i in range(n):
    if a[i] == b[i]:
        print(a[i],end=' ')
```

Status : Correct ***Marks : 10/10***

2. Problem Statement

Emily is a librarian who keeps track of books borrowed and returned by her patrons. She maintains four sets of book IDs: the first set represents books borrowed, the second set represents books returned, the third set

represents books added to the collection, and the fourth set represents books that are now missing. Emily wants to determine which books are still borrowed but not returned, as well as those that were added but are now missing. Finally, she needs to find all unique book IDs from both results.

Help Emily by writing a program that performs the following operations on four sets of integers:

Compute the difference between the borrowed books (first set) and the returned books (second set).Compute the difference between the added books (third set) and the missing books (fourth set).Find the union of the results from the previous two steps, and sort the final result in descending order.

Input Format

The first line of input consists of a list of integers representing borrowed books.

The second line of input consists of a list of integers representing returned books.

The third line of input consists of a list of integers representing added books.

The fourth line of input consists of a list of integers representing missing books.

Output Format

The first line of output displays the difference between sets P and Q, sorted in descending order.

The second line of output displays the difference between sets R and S, sorted in descending order.

The third line of output displays the union of the differences from the previous two steps, sorted in descending order.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 1 2 3
2 3 4
5 6 7
6 7 8

Output: [1]
[5]
[5, 1]

Answer

```
a = list(map(int,input().split()))
b = list(map(int,input().split()))
c = list(map(int,input().split()))
d = list(map(int,input().split()))
e=list(set(a)-set(b))
print(e)
f=list(set(c)-set(d))
print(f)
s = sorted(set(f)|set(e),reverse = True)
print(s)
```

Status : Correct ***Marks : 10/10***

3. Problem Statement

Alex is tasked with managing the membership lists of several exclusive clubs. Each club has its own list of members, and Alex needs to determine the unique members who are part of exactly one club when considering all clubs together.

Your goal is to help Alex by writing a program that calculates the symmetric difference of membership lists from multiple clubs and then finds the total number of unique members.

Input Format

The first line of input consists of an integer k, representing the number of clubs.

The next k lines each contain a space-separated list of integers, where each integer represents a member's ID.

Output Format

The first line of output displays the symmetric difference of the membership lists as a set.

The second line displays the sum of the elements in this symmetric difference.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 3
1 2 3
2 3 4
5 6 7

Output: {1, 4, 5, 6, 7}
23

Answer

```
n = int(input())
r = []
for i in range(n):
    a = list(map(int,input().split()))
    r = list(set(r)^set(a))
r.sort()
print("{",end='')
for i in range(len(r)):
    print(r[i],end='')
    if(i + 1 != len(r)):
        print(",",end=' ')
print("}")
print(sum(r))
```

Status : Correct ***Marks : 10/10***

4. Problem Statement

Alex is working with grayscale pixel intensities from an old photo that has been scanned in a single row. To detect edges in the image, Alex needs to calculate the differences between each pair of consecutive pixel

intensities.

Your task is to write a program that performs this calculation and returns the result as a tuple of differences.

Input Format

The first line of input contains an integer n, representing the number of pixel intensities.

The second line contains n space-separated integers representing the pixel intensities.

Output Format

The output displays a tuple containing the absolute differences between consecutive pixel intensities.

Refer to the sample output for format specifications.

Sample Test Case

Input: 5
200 100 20 80 10
Output: (100, 80, 60, 70)

Answer

```
n = int(input())
r=[]
a = list(map(int,input().split()))
r.append(abs(a[0]-a[1]))
for i in range(1,n-1):
    r.append(abs(a[i]-a[i+1]))
print(tuple(r))
```

Status : Correct ***Marks : 10/10***