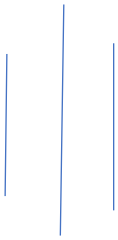
TRIBHUWAN UNIVERSITY

Institute Of Engineering

Pulchowk Campus



A LAB REPORT

ON

DATA STRUCTURE, CONDITIONS AND LOOP IN PYTHON

LAB NO: 01

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LAB 1 Programs

1. Remove duplicates

Code:

```
l1 = [8, 9, 7, 8, 6, 6, 5, 9, 4]
l2 = list(set(l1)) print(l2)
```

Output:

```
[4, 5, 6, 7, 8, 9]
```

2. Max and Min from Tuple

Code:

```
t1 = (10, 25, 34, 2, 9, 88, 4, 3, 6, 0)
print("Max:",max(t1))
print("Min:", min(t1))
```

Output:

```
Max: 88
Min: 0
```

3. Filter even numbers

Code:

```
def get_even(l):
   return [i for i in l if i % 2 == 0]

print(get_even([11, 22, 33, 44, 55, 66])) [22, 44, 66]
```

Output:

4.

Count characters in string

Code:

```
a = "banana" d1 = {} for
i in a:     d1[i] = d1.get(i,
0) + 1 print(d1)
```

Output:

```
{'a': 3, 'b': 1, 'n': 2}
```

5. Prime check in set

Code:

```
primes = {2, 3, 37, 5, 7, 41, 11, 43, 13, 47, 17, 19, 23, 29, 31}
num = 19 if num
in primes:
   print(f"{num} is a prime < 50")
else:    print(f"{num} is not a prime <
50")
```

Output:

```
19 is a prime < 50
```

6. Intersection of lists

Code:

```
l1 = [10, 20, 30, 40, 50] l2 =
[30, 40, 60, 70]
print(set(l1).intersection(l2))
```

Output:

{40, 30}

---

7. Merge dictionaries and sum values

Code:

```
d1 = {'x': 10, 'y': 20} d2 =
{'y': 5, 'z': 15} d3 =
{**d1} for k, v in
d2.items():     d3[k] =
d3.get(k, 0) + v
print(d3)
```

Output:

{'x': 10, 'y': 25, 'z': 15}

8. Count name appearances

Code:

```
names = ['Ram', 'Shyam', 'Hari', 'Ram', 'Hari', 'Ram']
count = {} for name in names:     count[name] =
count.get(name, 0) + 1 print(count)
```

Output:

{'Ram': 3, 'Shyam': 1, 'Hari': 2}

9. Remove elements from list

Code:

```
l1 = [100, 200, 300, 400] l2
= [200, 300]
l3 = [i for i in l1 if i not in l2] print(l3)
[100, 400]
```

Output:

10. Input key-value pairs and search

Code:

```
d = {'name': 'Alice', 'age': '20'} key =
'name' print("Value:", d.get(key, "Not
Found"))
```

Output:

```
Value: Alice
```

11. Prime check

Code:

```
n = 17

if n < 2:     print("Not Prime")
else:     for i in range(2,
int(n**0.5)+1):        if n % i == 0:
print("Not Prime")           break
else:        print("Prime")
```

Output:

```
Prime
```

12. Even numbers from 10 to 20

Code:

```
for i in range(10, 21):
if i % 2 == 0:
      print(i, end=" ")
```

Output:

10 12 14 16 18 20

13. Factorial using while *Code:*

```
n = 5
fact = 1
while n > 1:
fact *= n
   n  -=  1  print("Factorial
```

is:", fact) ***Output:***

Factorial is: 120

14. Multiplication table *Code:*

```
n = 4 for i in
range(1, 11):
   print(f"{n} x {i} = {n*i}")
```

Output:

---

4 x 1 = 4
4 x 2 = 8
4 x 3 = 12
4 x 4 = 16
4 x 5 = 20
4 x 6 = 24
4 x 7 = 28
4 x 8 = 32

4 x 9 = 36
4 x 10 = 40

15. Largest and smallest in list

Code:

```
import random
l1 = [86, 33, 43, 70, 3, 99, 26, 27, 25, 88]
print(l1) print("Max:", max(l1))
print("Min:", min(l1))
```

Output:

[86, 33, 43, 70, 3, 99, 26, 27, 25, 88]
Max: 99 Min:
3

16. Count +ve, -ve, zero

Code:

```
nums = [1, -2, 0, 3, -1, 0, 4, -3, 5, 0] p = sum(1
for x in nums if x > 0) n = sum(1 for x in nums
if x < 0) z = sum(1 for x in nums if x == 0)
print(f"Positive: {p}, Negative: {n}, Zero: {z}")
```

Output:

Positive: 4, Negative: 3, Zero: 3

17. Fibonacci sequence

Code:

```
n = 7 a, b = 1, 1
for _ in range(n):
```

```
print(a, end=" ")
a, b = b, a + b
```

Output:

---

1 1 2 3 5 8 13

18. Palindrome check

Code:

```
num = 12121 if str(num) ==
str(num)[::-1]:
print("Palindrome") else:
print("Not Palindrome")
```

Output:

Palindrome

19. Armstrong numbers

Code:

```
for n in range(100, 1000):    if
sum(int(d)**3 for d in str(n)) == n:
print(n)
```

Output:

153, 370, 371, 407

20. Arithmetic menu

Code:

```
a = 10 b = 5
choice = 1 if
choice == 1:
print(a + b)
elif choice ==
2:     print(a -
b) elif choice
== 3:
print(a * b)
elif choice ==
4:
   print(a / b)
```

Output: