

1) Calculate total bill?

items = [

{ "Price": 10.99, "quantity": 2 },

{ "Price": 5.49, "quantity": 3 },

{ "Price": 4.99, "quantity": 1 }

]

total_cost = sum(item["Price"] * item["quantity"] for item in items)

print("Total cost: \$", round(total_cost, 2))

2) Check if student passed or failed?

marks = 75

if marks >= 50:

 print("Student passed!")

else:

 print("Student failed.")

3) Swap two variable?

with the temporary variable

a = 5

b = 10

temp = a

a = b

b = temp

print("a =", a, "b =", b)

without temporary variable

a = 5

b = 10

a, b = b, a

print("a =", a, "b =", b)

4) Simple arithmetic calculator?

def add(x, y):

 return x + y

def subtract(x, y):

 return x - y

def multiply(x, y):

 return x * y

def divide(x, y):

 if y == 0:

 return "Error! Division by Zero!"

 return x / y

def calculator():

 num1 = float(input("Enter first number:"))

 operator = input("Enter operator (+, -, *, /):")

 num2 = float(input("Enter second number:"))

 if operator == "+":

 print("Result:", add(num1, num2))

 elif operator == "-":

 print("Result:", subtract(num1, num2))

 elif operator == "*":

 print("Result:", multiply(num1, num2))

 elif operator == "/":

 print("Result:", divide(num1, num2))

 else:

 print("Error! Invalid operator!")

calculator()

- 5) Simple statements (and expressions)
- # Exchange values of two variables
- ```

a=5
b=10
a,b = b,a
print ("a=", a, "b=", b)

```
- # calculate values of n variables
- ```

n=3
vars = [1, 2, 3]
vars = [vars[1:] + vars[:1]]
print (vars)

```
- # Distance between two points
- ```

import math
x1, y1 = 1, 2
x2, y2 = 4, 6
distance = math.sqrt ((x2 - x1) ** 2 + (y2 - y1) ** 2)
print ("Distance: ", distance)

```
- 6) Fibonacci series?
- ```

n=10
a, b = 0, 1
for i in range (n):
    print (a, end = " ")
    a, b = b, a + b

```
- # Implementing programs using functions
- ```

Factorial
def factorial (n):
 if n == 0:
 return 1
 return n * factorial (n - 1)

```

```
point("factorial:", factorial(5))
```

# Largest number in a List

```
def largest(counts):
```

```
 return max(counts)
```

```
point("Largest number!", largest([3, 1, 4, 2, 5]))
```

# Area of shape

```
def area(shape, **kwargs):
```

```
 if shape == "Circle":
```

```
 return 3.14 * kwargs["radius"]2
```

```
 elif shape == "rectangle":
```

```
 return kwargs["length"] * kwargs["width"]
```

```
point("Area of circle:", area("Circle", radius=5))
```

```
point("Area of rectangle:", area("rectangle", length=4,
```

```
 width=6))
```

8) Scientific problems using conditionals and iterative loops?

# Number series

```
for i in range(1, 11):
```

```
 point(i)
```

# Number patterns

```
for i in range(1, 6):
```

```
 for j in range(1, i+1):
```

```
 point(j, end=" ")
```

```
 point()
```

```
pyramid pattern
```

```
for i in range(5):
```

```
 print (" " * (4-i) + "*" * (2*i+1))
```

9) LCM and GCD

```
def gcd(a, b):
```

```
 while b:
```

```
 a, b = b, a % b
```

```
 return a
```

```
def lcm(a, b):
```

```
 return a * b // gcd(a, b)
```

```
print ("GCD:", gcd(12, 15))
```

```
print ("LCM:", lcm(12, 15))
```

10) Implementing programs using strings

```
string # reverse string
```

```
s = "hello"
```

```
print ("Reversed string:", s[::-1])
```

```
character count
```

```
s = "hello world"
```