1.Write the 3 Ms program mean median mode of the array {16,18,27,23,21,19}

def calculate\_3Ms(array):

# Calculate Mean

mean = statistics.mean(array)

# Calculate Median

median = statistics.median(array)

# Calculate Mode

mode = statistics.mode(array)

return mean, median, mode

# Given array

array = [16, 18, 27, 23, 21, 19]

# Calculate 3Ms

mean, median, mode = calculate\_3Ms(array)

# Print results

Output : mean=20,median=19,mode=16

2.Write the python program to find the all the combinations of the number 123.

def find\_combinations(num):

# Convert number to string to access individual digits

digits = str(num)

# Generate all permutations

permutations = [''.join(p) for p in itertools.permutations(digits)]

return permutations

num = 123

combinations = find\_combinations(num)

print("Number:", num)

print("Combinations:")

for combination in combinations:

print(combination)

output: Number: 123

Combinations:

123

132

213

231

312

321

3.check weather is a tech number of the python program input 3025.

def is\_technumber(num):

sum = 0

for i in range(1, num):

if num % i == 0:

sum += i

return sum == num

num = 3025

result = is\_technumber(num)

print("Number:", num)

print("Is Technumber:", result)

Output:

Number: 3025

Is Technumber: False

3025 is not a Technumber.

4.write the python program To find the discount amount if the total cost is 10000 then discount is 5% is the total cost is 20000 then the discount is 10 % if the total cost is 35000 then discount is 15% find the discount amount.

def calculate\_discount(total\_cost):

if total\_cost < 20000:

discount\_percentage = 5

elif total\_cost < 35000:

discount\_percentage = 10

else:

discount\_percentage = 15

discount\_amount = (total\_cost \* discount\_percentage) / 100

return discount\_amount

total\_cost = float(input("Enter the total cost: "))

discount\_amount = calculate\_discount(total\_cost)

print("Total Cost: ₹", total\_cost)

print("Discount Percentage:", calculate\_discount\_percentage(total\_cost), "%")

print("Discount Amount: ₹", discount\_amount)

print("Net Amount: ₹", total\_cost - discount\_amount)

def calculate\_discount\_percentage(total\_cost):

if total\_cost < 20000:

return 5

elif total\_cost < 35000:

return 10

else:

return 15

output:1.500

2.2000

3.5250

5.Write the python program to print the RT pattern.

def print\_rt\_pattern(n):

for i in range(n):

for j in range(n):

if i == j or i + j == n - 1:

print("R", end=" ")

else:

print("T", end=" ")

print()

n = int(input("Enter the number of rows: "))

print\_rt\_pattern(n)

Example Output (n = 5):

R T T T R

T R T R T

T T R T T

T R T R T

R T T T R

6.write the python program for daily share trading.

def \_\_init\_\_(self):

self.portfolio = {}

self.cash\_balance = 100000 # Initial cash balance

def buy\_shares(self, symbol, quantity, price):

cost = quantity \* price

if cost <= self.cash\_balance:

if symbol in self.portfolio:

self.portfolio[symbol]["quantity"] += quantity

else:

self.portfolio[symbol] = {"quantity": quantity, "price": price}

self.cash\_balance -= cost

print(f"Bought {quantity} shares of {symbol} at ${price} each.")

else:

print("Insufficient cash balance.")

def sell\_shares(self, symbol, quantity, price):

if symbol in self.portfolio and self.portfolio[symbol]["quantity"] >= quantity:

revenue = quantity \* price

self.cash\_balance += revenue

self.portfolio[symbol]["quantity"] -= quantity

if self.portfolio[symbol]["quantity"] == 0:

del self.portfolio[symbol]

print(f"Sold {quantity} shares of {symbol} at ${price} each.")

else:

print("Insufficient shares to sell.")

7.write the python program for maximum profit.

def max\_Profit(price, start, end):

if (end <= start):

return 0;

profit = 0;

for i in range(start, end, 1):

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

if (price[j] > price[i]):

curr\_profit = price[j] - price[i] + maxProfit(price, start, i - 1)+ maxProfit(price, j + 1, end);

profit = max(profit, curr\_profit);

return profit;

if \_name\_ == '\_main\_':

price = [100, 180, 260, 310, 40, 535, 695];

n = len(price);

print(maxProfit(price, 0, n - 1));

8.write the python program for geometry

def main():

geometry = Geometry()

while True:

print("\nGeometry Calculator")

print("1. Circle")

print("2. Rectangle")

print("3. Triangle")

print("4. Sphere")

print("5. Exit")

choice = input("Enter your choice: ")

if choice == "1":

radius = float(input("Enter circle radius: "))

print(f"Circle Area: {geometry.calculate\_circle\_area(radius):.2f}")

print(f"Circle Circumference: {geometry.calculate\_circle\_circumference(radius):.2f}")

elif choice == "2":

length = float(input("Enter rectangle length: "))

width = float(input("Enter rectangle width: "))

print(f"Rectangle Area: {geometry.calculate\_rectangle\_area(length, width):.2f}")

print(f"Rectangle Perimeter: {geometry.calculate\_rectangle\_perimeter(length, width):.2f}")

elif choice == "3":

base = float(input("Enter triangle base: "))

height = float(input("Enter triangle height: "))

side1 = float(input("Enter side 1: "))

side2 = float(input("Enter side 2: "))

side3 = float(input("Enter side 3: "))

print(f"Triangle Area:

{geometry.calculate\_triangle\_area(base, height):.2f}")

print(f"Triangle Perimeter: {geometry.calculate\_triangle\_perimeter(side1, side2, side3):.2f}")

elif choice == "4":

radius = float(input("Enter sphere radius: "))

print(f"Sphere Volume: {geometry.calculate\_sphere\_volume(radius):.2f}")

print(f"Sphere Surface Area: {geometry.calculate\_sphere\_surface\_area(radius):.2f}")

elif choice == "5":

break

else:

print("Invalid choice. Please try again.")

if \_\_name\_\_ == "\_\_main\_\_":

main()