**Practical No.11**

**Title :**

Read the marks obtained by students of second year in an online examination of particular subject. Find out maximum and minimum marks obtained in that subject. Use heap data structure. Analyze the algorithm.

**Objective :**

* To read the marks obtained by students of second year.
* To find out maximum and minimum marks obtained in that subject.

**Source Code :**

import heapq

def find\_max\_min\_marks(marks):

max\_heap = []

min\_heap = []

# Construct max heap and min heap

for mark in marks:

heapq.heappush(max\_heap, -mark) # Use negative to create max heap

heapq.heappush(min\_heap, mark)

# Maximum marks is the negative of the root of max heap

max\_marks = -heapq.heappop(max\_heap)

# Minimum marks is the root of min heap

min\_marks = heapq.heappop(min\_heap)

return max\_marks, min\_marks

# Take input from the user

marks = []

num\_students = int(input("Enter the number of students: "))

print("Enter the marks obtained by each student:")

for i in range(num\_students):

mark = int(input(f"Enter marks for student {i+1}: "))

marks.append(mark)

# Find maximum and minimum marks

max\_marks, min\_marks = find\_max\_min\_marks(marks)

print("Maximum marks:", max\_marks)

print("Minimum marks:", min\_marks)

**Output :**

