

## Practical No:1

Program:

```
#include <stdio.h>

#define MAX 101 // Marks range from 0 to 100

float averageScore(int marks[], int n) {
    int sum = 0, count = 0;
    for (int i = 0; i < n; i++) {
        if (marks[i] != -1) {
            sum += marks[i];
            count++;
        }
    }
    return (count == 0) ? 0 : (float)sum / count;
}

int highestScore(int marks[], int n) {
    int max = -1;
    for (int i = 0; i < n; i++) {
        if (marks[i] != -1 && marks[i] > max) {
            max = marks[i];
        }
    }
    return max;
}

int lowestScore(int marks[], int n) {
    int min = 101;
    for (int i = 0; i < n; i++) {
        if (marks[i] != -1 && marks[i] < min) {
            min = marks[i];
        }
    }
    return (min == 101) ? -1 : min; // In case all students are absent
}
```

```

int countAbsent(int marks[], int n) {
    int count = 0;
    for (int i = 0; i < n; i++) {
        if (marks[i] == -1)
            count++;
    }
    return count;
}

int highestFrequency(int marks[], int n) {
    int freq[MAX] = {0};
    int maxFreq = 0, value = -1;
    for (int i = 0; i < n; i++) {
        if (marks[i] != -1) {
            freq[marks[i]]++;
            if (freq[marks[i]] > maxFreq) {
                maxFreq = freq[marks[i]];
                value = marks[i];
            }
        }
    }
    return value;
}

int main() {
    int n, marks[MAX];
    printf("Enter number of students: ");
    scanf("%d", &n);
    if (n <= 0 || n > MAX) {
        printf("Invalid number of students. Must be between 1 and %d.\n", MAX);
        return 1;
    }
    printf("Enter marks of students (-1 for absent):\n");
    for (int i = 0; i < n; i++) {

```

```

int input;
scanf("%d", &input);

// Validate input
while (input != -1 && (input < 0 || input > 100)) {
    printf("Invalid mark. Enter again (0-100 or -1 for absent): ");
    scanf("%d", &input);
}

marks[i] = input;
}

printf("\nAverage Marks: %.2f", averageScore(marks, n));

int highest = highestScore(marks, n);
if (highest == -1)
    printf("\nHighest Marks: N/A (All students absent)");
else
    printf("\nHighest Marks: %d", highest);

int lowest = lowestScore(marks, n);
if (lowest == -1)
    printf("\nLowest Marks: N/A (All students absent)");
else
    printf("\nLowest Marks: %d", lowest);

printf("\nNumber of Absentees: %d", countAbsent(marks, n));

int freq = highestFrequency(marks, n);
if (freq == -1)
    printf("\nMarks with Highest Frequency: N/A (All students absent)\n");
else
    printf("\nMarks with Highest Frequency: %d\n", freq);

return 0;
}

```

**Output:**

```
Enter number of students: 5
Enter marks of students (-1 for absent):
50
70
80
-1
70
```

```
Average Marks: 67.50
Highest Marks: 80
Lowest Marks: 50
Number of Absentees: 1
Marks with Highest Frequency: 70
```

```
==> Code Execution Successful ==>
```