Experiment No.4

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Details of students according to their marks

1.Research:

Sorting marks of students from highest to lowest is essential for efficiently identifying top performers, quickly analyzing class performance, and creating reports. It simplifies comparisons between students, helps in identifying the highest and lowest scores for grading or awards, and can be used to group students for targeted instruction or interventions.

Failing to sort student details by marks from highest to lowest presents significant challenges in efficiency, analysis, decision-making, and communication for educational institutions and staff.

2.Analysis:

Organizing student lists and details according to their marks (or academic performance) is important primarily for data-driven decision-making, personalized instruction, and efficient administration.

- **Identify Strengths and Weaknesses:** Sorting by marks helps teachers quickly spot students who are excelling (high-performers) and those who are struggling (low-performers or at-risk students).
- **Goal Setting and Motivation:** Students can use their performance data to understand their current standing, set realistic goals, and track their progress, which can be a strong motivator for improvement.
- **Learning at their own pace:** Sorting students can help create environments where they can learn at a pace suitable for their ability.

3.Ideate:

- Displaying a list of student details sorted by their marks primarily involves two steps: storing the data efficiently and then sorting that data based on the marks field. This can be achieved through different methods depending on the context (programming, databases, or general applications).
- After entering all the details and marks of the students, the program will sort the details in descending order of their marks by using a sorting algorithm**.** Student details will be displayed according to the marks obtained in the assignment from highest to lowest.

4.Build:

```
   // Online C compiler to run C program online
#include <stdio.h>
#include <string.h>

   struct Student
   { char Student_name[25];
     int roll_no;
     float Obt_marks;
   };
    //Write C code here
   int main() {

    struct Student Assign[20];
    int Max_marks=100,n;
    printf("Enter number of students :");
```

```
    scanf("%d",&n);
    printf("\n");

    for(int i=0;i<n;i++) {
       printf("Enter name of the student:");
       scanf("%s", Assign[i].Student_name);
       printf("Enter roll number of the student:");
       scanf("%d",&Assign[i].roll_no);
       printf("Enter marks obtained in assignment:");
       scanf("%f",&Assign[i].Obt_marks);
       printf("\n");
     }

      for(int i=0;i<n;i++) {
        for(int j=i+1;j<n+1;j++) {
          if(Assign[i].Obt_marks<Assign[j].Obt_marks) {
                int temp=Assign[i].Obt_marks;
                Assign[i].Obt_marks= Assign[j].Obt_marks;
                Assign[j].Obt_marks=temp;

                char S1[25];
                strcpy(S1, Assign[i].Student_name);
                strcpy( Assign[i].Student_name, Assign[j].Student_name);
                strcpy( Assign[j].Student_name, S1);

                int Roll=Assign[i].roll_no;
                Assign[i].roll_no=Assign[j].roll_no;
                Assign[j].roll_no=Roll;
           }
      }
      }
      //Display details of the student
      printf("\n=================Student
Details====================\n");
      printf("\n");
```

```
      for(int i=0;i<n;i++)
       {printf("Name of the student is:%s",Assign[i].Student_name);
        printf("\n-----------------------------------------------\n");
        printf("Roll number of the student is:%d",Assign[i].roll_no);
        printf("\n-----------------------------------------------\n");
        printf("Maximum marks:%d",Max_marks);
        printf("\n-----------------------------------------------\n");
        printf("Marks obtained in assignment:%f",Assign[i].Obt_marks);
        printf("\n***********************************************\n");
        printf("\n");
       }

printf("\n================================================
==\n");


   return 0;
}
```

5.Test:

```
Enter number of students :5

Enter name of the student:Siddhi
Enter roll number of the student:25
Enter marks obtained in assignment:80

Enter name of the student:Komal
Enter roll number of the student:30
Enter marks obtained in assignment:92

Enter name of the student:Shreya
Enter roll number of the student:28
Enter marks obtained in assignment:90
```

Enter name of the student:Riya
Enter roll number of the student:35
Enter marks obtained in assignment:88

Enter name of the student:Shweta
Enter roll number of the student:32
Enter marks obtained in assignment:95

==========Student Details==========

Name of the student is:Shweta

Roll number of the student is:32

Maximum marks:100

Marks obtained in assignment:95.000000
****

Name of the student is:Komal

Roll number of the student is:30

Maximum marks:100

Marks obtained in assignment:92.000000
****

Name of the student is:Shreya

Roll number of the student is:28

Maximum marks:100

Marks obtained in assignment:90.000000
****

Name of the student is:Riya

Roll number of the student is:35

Maximum marks:100

Marks obtained in assignment:88.000000
****

Name of the student is:Siddhi

Roll number of the student is:25

Maximum marks:100

Marks obtained in assignment:80.000000
****

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=== Code Execution Successful ===

6.Implementation:

Organize each student's data by using structure and array in c programming.To sort student details by their marks from highest to lowest, we need to store each student's details as a record or object and use a sorting algorithm that orders these records based on the marks field in descending order.

Reference:

https://econofact.org/does-sorting-students-by-ability-improve-learning-or-increase-disparity

Github link: