Q: Enter some Students data like Name, Roll no, Class, subjectcode, subname, marks obtained, max marks etc. Print their Grades according to following rule Grade A if marks obtained are in range 75-100. Grade B if marks obtained are in range 60-74. Grade C if marks obtained are in range 45-59 Grade D if marks obtained are in range 35-44 Grade F if marks obtained are in range 0-34.

Ans:

Source Code:

```
#include<iostream>

#include<vector>

#include<string>

#include <iomanip>

#include<vector>


using namespace std;


class Student{

    private:

        string name;

        string _class;

        string roll_num;

        int num;

        string *subject_code;
```

```
    string *subject_name;
    float *marks;
    float max_marks;
  public:

    Student() {}

    Student(string na,string cl,string r_n,int n, string s_c[],string s_n[], float m[]){
        name=na;
        _class=cl;
        roll_num=r_n;
        num=n;
        subject_code=s_c;
        subject_name=s_n;
        marks=m;
        max_marks=-1;
        for(int i=0;i<num;i++){
            if(max_marks<marks[i]) max_marks=marks[i];
        }
    }
    void marksheet(){
        cout<<"Name: "<<name<<"\nRoll Number: "<<roll_num<<"\nClass: "<<_class<<endl;
        cout<<"-----------------------------------------\n";
        cout<<"| Subject code| Subject Name| Marks| Grade|\n";
        cout<<"-----------------------------------------\n";
        for(int i=0;i<num;i++){
            cout<<"| "<<setw(12)<<subject_code[i]<<"| "<<setw(12)<<subject_name[i]<<"| "<<setw(5)<<marks[i]<<"|
"<<setw(5)<<grade(marks[i])<<"|\n";
```

```
        }
        cout<<"-----------------------------------------\n";
        cout<<"Max_marks: "<<max_marks<<endl;
        cout<<"Net Grade: "<<grade(total(marks,num)/num)<<endl;
    }

    float total(float m[],int n){
        float sum=0;
        for(int i=0;i<n;i++) sum+=m[i];
        return sum;
    }

    string grade(float m){
        if(m>=75) return "A";
        else if(m<75 && m>=60) return "B";
        else if(m<60 && m>=45) return "C";
        else if(m<45 && m>=35) return "D";
        return "F";
    }
};

int main(){
    int n;
    cout<<"Enter Number of students:\t";
    cin>>n;
    Student arr[100];
    for(int i=0;i<n;i++){
```

```
    string name,clas,r_n,s_c[20],s_n[20]; int num; float m[20];
    cout<<"Enter Name and Roll Number of student:\t";
    cin>>name>>r_n;
    cout<<"Enter Class of student:\t";
    cin>>clas;
    cout<<"Enter Number of subjects:\t";
    cin>>num;
    cout<<"Enter the Subject codes, Subject Name, marks obtained\n";
    for(int j=0;j<num;j++) cin>>s_c[j]>>s_n[j]>>m[j];
    Student s(name,clas,r_n,num,s_c,s_n,m);
    cout<<endl;
    s.marksheet();
  }
  return 0;
}
```

Output:

D:\sem-5\opp_Lab\1.exe

```
Enter Number of students:       2
Enter Name and Roll Number of student:  Ruben 19BCS061
Enter Class of student: 3rd
Enter Number of subjects:       4
Enter the Subject codes, Subject Name, marks obtained
CEN501 SE 80
CEN502 CI 23
CEN503 CN 60
CEN504 ML 54

Name: Ruben
Roll Number: 19BCS061
Class: 3rd
-----------------------------------------
| Subject code| Subject Name| Marks| Grade|
-----------------------------------------
|       CEN501|           SE|    80|     A|
|       CEN502|           CI|    23|     F|
|       CEN503|           CN|    60|     B|
|       CEN504|           ML|    54|     C|
-----------------------------------------
Max_marks: 80
Net Grade: C
Enter Name and Roll Number of student:  Bedi 20BCS010
Enter Class of student: 2nd
Enter Number of subjects:       3
Enter the Subject codes, Subject Name, marks obtained
CEN301 DS 90
CEN302 DLD 51
CEN OOP 80

Name: Bedi
Roll Number: 20BCS010
Class: 2nd
-----------------------------------------
| Subject code| Subject Name| Marks| Grade|
-----------------------------------------
|       CEN301|           DS|    90|     A|
|       CEN302|          DLD|    51|     C|
|          CEN|          OOP|    80|     A|
-----------------------------------------
Max_marks: 90
Net Grade: B

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Process exited after 168.8 seconds with return value 0
Press any key to continue . . .
```