**Program Number 1:**

**PROGRAM**

#include <iostream>

using namespace std;

//Classes to be define

class Student

{

protected:

char name[25];

int age; // base class

char admission\_no[15];

char address[30];

void getStudent()

{

cout << "Enter the name of the student : ";

cin >> name;

cout << "Enter the age of the student : ";

cin >> age;

cout << "Enter the admission number of the student : ";

cin >> admission\_no;

cout << "Enter the address of the student : ";

cin >> address;

}

};

class Graduate :public Student

{

public:

char degree\_program[30];

void getStudent()

{

cout << "Enter the name of the student : ";

cin >> name;

cout << "Enter the age of the student : ";

cin >> age;

cout << "Enter the admission number of the student : "; // derived class

cin >> admission\_no;

cout << "Enter the address of the student : ";

cin >> address;

cout << "Enter the degree of the student : ";

cin >> degree\_program;

}

void display()

{

cout << "Name of the student is : " << name << endl;

cout << "Age of the student is : " << age << endl;

cout << "Admission number of the student is : " << admission\_no << endl;

cout << "Address of the student is : " << address << endl;

cout << "Degree program of the student is : " << degree\_program << endl;

}

};

class Under\_Graduate :public Student

{

public:

char degree\_program[30];

void getStudent()

{

cout << "Enter the name of the student : ";

cin >> name;

cout << "Enter the age of the student : ";

cin >> age;

cout << "Enter the admission number of the student : "; // derived class

cin >> admission\_no;

cout << "Enter the address of the student : ";

cin >> address;

cout << "Enter the degree of the student : ";

cin >> degree\_program;

}

void display()

{

cout << "Name of the student is : " << name << endl;

cout << "Age of the student is : " << age << endl;

cout << "Admission number of the student is : " << admission\_no << endl;

cout << "Address of the student is : " << address << endl;

cout << "Degree program of the student is : " << degree\_program << endl;

}

};

int main()

{

Graduate G;

Under\_Graduate UG;

cout << "Enter the Information for Graduate Student ! " << endl<<endl;

G.getStudent();

cout << endl;

cout << "Enter the Information for Under Graduate Student ! " << endl << endl;

UG.getStudent();

cout << endl;

cout << "\*\*\*\*\*\*\*\*\*\*GRADUATE STUDENT\*\*\*\*\*\*\*\*\*\*" << endl<<endl;

G.display();

cout << endl;

cout << "\*\*\*\*\*\*\*\*\*\*UNDER-GRADUATE STUDENT\*\*\*\*\*\*\*\*\*\*" << endl<<endl;

UG.display();

cout << endl;

cout << endl << endl;

system("pause");

}

**A screenshot of a computer screen

Description automatically generated**

**Program Number 2:**

**PROGRAM**

#include <iostream>

using namespace std;

//Classes to be define

class Student

{

public:

char roll\_no[15];

void get\_roll\_no()

{

cout << "Enter you roll number : "; // base class

cin >> roll\_no;

}

void disp\_roll\_no()

{

cout << "Entered roll number is : " << roll\_no;

}

};

class Subject :public Student

{

public:

float sub1,sub2;

void get\_roll\_no()

{

cout << "Enter you roll number : "; // derived class of student

cin >> roll\_no;

cout << "Enter your marks in OOP : ";

cin >> sub1;

cout << "Enter your marks in Discreet Structures : ";

cin >> sub2;

}

};

class Sports

{

public:

float marks;

void sport()

{

cout << "Enter your marks in sports : ";

cin >> marks;

}

};

class Result:public Subject,public Sports

{

public:

void total()

{

cout << endl<<"Total subject scores obtained by student is : " << sub1 + sub2<<endl;

cout << "Total sport scores obtained by student is : " << marks<<endl;

cout <<endl<< "Overall collecively the score becomes : " << sub1 + sub2 + marks;

}

};

int main()

{

Result std;

std.get\_roll\_no();

std.sport();

std.total();

cout << endl << endl;

system("pause");

}

**A screenshot of a computer monitor sitting on top of a computer

Description automatically generated**

**Program Number 3:**

**PROGRAM**

#include <iostream>

using namespace std;

//Classes to be define

class Person

{

protected:

char name[25];

int age;

public:

void getdata()

{

cout << "Enter the Name of Person : ";

cin >> name;

cout << "Enter Age of the Person : "; // Base Person class

cin >> age;

}

void showdata()

{

cout << endl << "Name of the Person is : " << name;

cout << endl << "Age of the Person is : " << age;

}

};

class Student :public Person

{

private:

char id\_no[15];

public:

void getdata()

{

cout << "Enter the Name of Student : ";

cin >> name;

cout << "Enter Age of the Student : ";

cin >> age;

cout << "Enter the ID number of the student : ";

cin >> id\_no;

}

void showdata() // Derived Student Class

{

cout << endl << "Name of the Student is : " << name;

cout << endl << "Age of the Student is : " << age;

cout << endl << "ID number of the Student is : " << id\_no;

}

};

class Employee :public Person

{

private:

int salary;

public:

void getdata()

{

cout << "Enter the Name of Employee : ";

cin >> name;

cout << "Enter Age of the Employee : ";

cin >> age;

cout << "Enter the Salary of the Employee in rupees : ";

cin >> salary;

}

void showdata() // Derieved Employee class

{

cout << endl << "Name of the Employee is : " << name;

cout << endl << "Age of the Employee is : " << age;

cout << endl << "Salary of the Employee is : " << salary;

}

};

int main()

{

Student S;

Employee E;

cout << "Getting values of Student"<<endl;

S.getdata();

cout << endl << "Getting values of Employee" << endl;

E.getdata();

cout << endl;

cout << endl << "Displaying values of Student" << endl;

S.showdata();

cout << endl << "Displaying values of Employee" << endl;

E.showdata();

cout << endl << endl;

system("pause");

}

**A screenshot of a computer screen

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**Program Number 4:**

**PROGRAM**

#include <iostream>

using namespace std;

//Classes to be define

class Employee

{

public:

char name[25];

char id[15];

void setvalues()

{

cout << "Enter the Name of the Employee : ";

cin >> name;

cout << "Enter the ID of the Employee : ";

cin >> id;

}

void showvalues()

{

cout << "The Name of the Employee is : " << name;

cout << "The Id of the Employee is : " << id;

}

};

class Student

{

public:

char uni\_name[50];

char degree[25];

void setvalues()

{

cout << "Enter the Name of the University of Student : ";

cin >> uni\_name;

cout << "Enter the Degree of the Student : ";

cin >> degree;

}

void showvalues()

{

cout << "The Name of the University of Student is : " << uni\_name;

cout << "The Degree of the Student is : " << degree;

}

};

class Manager :public Employee, public Student

{

public:

char title[25];

int dues;

void setvalues()

{

cout << "Enter the Name of the University of Student : ";

cin >> uni\_name;

cout << "Enter the Degree of the Student : ";

cin >> degree;

cout << "Enter the Name of the Employee : ";

cin >> name;

cout << "Enter the ID of the Employee : ";

cin >> id;

cout << "Enter the Title of the Manager : ";

cin >> title;

cout << "Enter the Dues of the Manager : ";

cin >> dues;

}

void showvalues()

{

cout << endl << "The Name of the University of Student is : " << uni\_name;

cout << endl << "The Degree of the Student is : " << degree;

cout << endl << "The Name of the Employee is : " << name;

cout << endl << "The Id of the Employee is : " << id;

cout << endl << "The Title of the Manager is : " << title;

cout << endl << "The Dues of the Employee are : " << dues;

}

};

class Scientist :public Employee, public Student

{

public:

int no\_of\_publications;

void setvalues()

{

cout << "Enter the Name of the University of Student : ";

cin >> uni\_name;

cout << "Enter the Degree of the Student : ";

cin >> degree;

cout << "Enter the Name of the Employee : ";

cin >> name;

cout << "Enter the ID of the Employee : ";

cin >> id;

cout << "Enter the Number of Publciations of the Scientist : ";

cin >> no\_of\_publications;

}

void showvalues()

{

cout << endl << "The Name of the University of Student is : " << uni\_name;

cout << endl << "The Degree of the Student is : " << degree;

cout << endl << "The Name of the Employee is : " << name;

cout << endl << "The Id of the Employee is : " << id;

cout << endl << "The Number of Publciations of the Scientist is : " << no\_of\_publications;

}

};

int main()

{

Manager M;

Scientist S;

cout << "Inputting values for Manager " << endl;

M.setvalues();

cout <<endl<< "Inputting values for Scientist " << endl;

S.setvalues();

cout <<endl<< "Displaying values for Manager " << endl;

M.showvalues();

cout << endl <<endl<< "Displaying values for Scientist " << endl;

S.showvalues();

cout << endl << endl;

system("pause");

}

**A screenshot of a computer screen

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**Program Number 5:**

**PROGRAM**

#include <iostream>

using namespace std;

//Classes to be define

class Worker

{

public:

char name[25];

int Working\_hours;

void getvalues()

{

cout << "Enter Name of the Worker : ";

cin >> name;

cout << "Enter Wroking Hours of the Worker : ";

cin >> Working\_hours;

}

void display()

{

cout << "Name of the Worker is : "<<name<<endl;

cout << "Working Hours of the Worker are : " << Working\_hours;

}

};

class Employee: public Worker

{

public:

char name\_of\_the\_department[50];

int salary;

void getvalues()

{

cout <<endl<< "Enter Name of the Employee : ";

cin >> name;

cout << "Enter Wroking Hours of the Employee : ";

cin >> Working\_hours;

cout << "Enter the Name of the Department of Employee : ";

cin >> name\_of\_the\_department;

cout << "Enter Salary of the Employee : ";

cin >> salary;

}

void display()

{

cout << "Name of the Employee is : " << name << endl;

cout << "Working Hours of the Employee are : " << Working\_hours<<endl;

cout << "Name of the Department of Employee is : " << name\_of\_the\_department << endl;

cout << "Salary of the Employee is : " << salary << endl;

}

};

class Manager : public Worker

{

public:

int managed\_employees;

int no\_of\_projects;

void getvalues()

{

cout <<endl<< "Enter Name of the Manager : ";

cin >> name;

cout << "Enter Wroking Hours of the Manager : ";

cin >> Working\_hours;

cout << "Enter Employees being Managed by Manager : ";

cin >> managed\_employees;

cout << "Enter Number of Projects on which the Manager is working : ";

cin >> no\_of\_projects;

}

void display()

{

cout << "Name of the Manager is : " << name << endl;

cout << "Working Hours of the Manager are : " << Working\_hours<<endl;

cout << "Employees being Managed by Manager are : " << managed\_employees << endl;

cout << "Number of Projects on which Manager is working : " << no\_of\_projects << endl;

}

};

int main()

{

Employee \*ptr1;

Manager \*ptr2;

ptr1 = new Employee ;

ptr2 = new Manager;

cout << "Entering values for Employee " << endl;

ptr1->getvalues();

cout << endl << "Entering values for Manager " << endl;

ptr2->getvalues();

cout << endl << "Displaying values for Employee" << endl << endl;

ptr1->display();

cout << endl << "Displaying values for Manager" << endl << endl;

ptr2->display();

delete ptr1;

delete ptr2;

ptr1 = NULL;

ptr2 = NULL;

cout << endl << endl;

system("pause");

}

**A screenshot of a computer screen

Description automatically generated**