**Number 1**

#include<iostream>

//base class Computer

class Computer

{

public:

//data

int RAM;

int storage;

//functions

void turnOn()

{

std::cout<<"Computer is turned on"<<std::end1;

}

};

//derived class Client

class Client;

public Computer

{

public:

/data

int numClients;

//functions

void connect()

{

std::cout<<"Client is connected to the server"<< std::end1;

}

};

//derived class Server

class Server : public Computer

{

public:

//data

int numServers;

//functions

void server()

{

std::cout<<"Server is serving the clients"<< std::end1;

}

};

int main()

{

//object of class computer

Computer c;

c.RAM = 8;

c.storage = 1000;

c.turnOn();

//object of class

}

**Number 2(i)**

#include<iostream>

#include<string>

using namespace std;

class Person

{

public:

Person(int age, std::string firstName, std::string lastName);

int getAge();

std::string getFirstName();

std::string getLastName();

void setAge(int age);

void setFirstName(std::string FirstName);

void setLastName(std::string LastName);

private:

int m\_age;

std::string firstName;

std::string lastName;

};

Person::Person(int age,std::string firstName, std::string lastName)

{

m\_age = age;

firstName = firstName;

lastName = lastName;

}

int Person::getAge()

{

return m\_age;

}

std::string Person::getFirstName()

{

return firstName;

}

std::string Person::getLastName()

{

return lastName;

}

void Person::setAge(int age)

{

m\_age = age;

}

void Person::setFirstName(std::string FirstName)

{

firstName = firstName;

}

void Person::setLastName(std::string lastName)

{

lastName = lastName;

}

return 0;

}

**(ii)**

#include <iostream>

#include<string>

class Person

{

private:

std::string name;

int age;

public:

Person(std::string name, int age)

{this->name = name;

this->age = age;

}

std::string getName()

{

return name;

}

};

class Student:

public Person

{

private:

std::string institution;

int year;

int regNo;

public:

Student(std::string name, int age, std::string institution, int year, int regNo)

:Person(name,age), institution(institution), year(year), regNo(regNo)

{

}

std::string getInstitution()

{

return institution;

}

int getYear()

{

return year;

}

int getRegNo()

{

return regNo;

}

};

int main()

{Student("Tom",21,"university")

}

**Number 3**

#include<iostream>

using namespace std;

int main()

{

string courseName;

int studentLevel;

cout<< "University student courses: ICT, Law and Business"<<end1;

cout<<"What course are you studying?";

cin>>courseName;

//Check course name

if(courseName== "ICT")

{

cout<<"What level are you studying? \n 1. Certificate \n 2. Diploma \n 3. Degree (BSC-IT)";

cin>>studentLevel;

//Check student level

if(studentLevel==1)

{

cout<<"You are studying a Certificate in ICT"<<end1;

}

else if(studentLevel==2)

{cout<<"You are studying a Diploma in ICT"<<end1;

}

else if(studentLevel==3)

{cout<<"You are studying a Degree in BSC-IT. \n What stage are you in? \n 1. Stage 1 \n 2. Stage \n 3. Stage 3";

cin>>studentLevel;

//Check student level

if(studentLevel==1)

{

cout<<"You are in Stage 1 of BSC-IT"<<end1;

}

else if(studentLevel==2)

{

cout<<"You are in Stage 2 of BSC-IT"<<end1;

}

else if(studentLevel==3)

{

cout<<"You are in Stage 3 of BSC-IT"<<end1;

}

else

{

cout<<"Invalid input"<<end1;

}

}

else

{

cout<<"Invalid input"<<end1;

}

}

else if(courseName=="Law")

{

cout<<"You are studying Law"<<end1;

}

else if(courseName=="Business")

{

cout<<"You are studying Business"<<end1;

}

else

{

cout<<"Invalid input"<<end1;

}

return 0;

}