# EXPERIMENT NUMBER –Practical 2.3.1

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CLASS AND GROUP –CSE-IOT-B

SEMESTER – 2nd

TOPIC OF EXPERIMENT - WAP to create a class that will maintain the records of person with details (Name and Age) and find the eldest among them. The program must use this pointer to return the result by overloading> operator among two objects.

AIM OF THE EXPERIMENT:- Programs based on Run-time polymorphism.

FLOWCHART/ ALGORITHM:-

Algorithm:-

Step.1. Start

Step.2. Create a class Records.

Step.3. Declare data members such as name and age.

Step.4. Create a public access specifier class

Step.5. Declare record

Step.6. Declare void show

Step.7. Display name and age

Step.8. Declare condition for eldest records

Step.9. Create main function

Step.10. Initialize record of persons

Step.11. Runing for loop

Step.12. Call member function and return

Step.13. Stop

PROGRAM CODE

#include<iostream>

using namespace std;

class Records

{

int age;

string name;

public:

Records() {};

Records(string n,int a): name(n),age(a) {}

void show()

{

cout<<name<<" : "<<age<<endl;

}

Records eldest(Records o)

{

return (o.age>age)? o: \*this;

}

};

int main()

{

Records ob[3]={Records("Aanaa",18),Records("Summaya",20),Records("Nishi",40)};

Records res;

for(int i=0;i<2;i++)

res = ob[i].eldest(ob[i+1]);

res.show();

return 0;

}

ERRORS ENCOUNTERED DURING PROGRAM’S EXECUTION

(Kindly jot down the compile time errors encountered)

NA

PROGRAMS’ EXPLANATION (in brief):-

**In this program we creating a class that will maintain the records of presons with name and age and finding eldest among them after creating a class record inside it we declaring data member such as name age then we declaring main function inside it declaring record and** **initializing record of three persons after that we checking conditions of eldest one then for loop will be in work, the number of looping equal to number of person’s data, we will pass argument to the function whose return type is Records, and then we will get the name who is oldest and his age. and displaying the eldest among them in console.**

OUTPUT:-

Nishi : 40

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Process exited after 0.09686 seconds with return value 0

Press any key to continue . . .

# EXPERIMENT NUMBER –Practical 2.3.2

STUDENT’S NAME – Satyam kumar navneet

STUDENT’S UID – 20BCS4588

CLASS AND GROUP –CSE-IOT-B

SEMESTER –2nd

TOPIC OF EXPERIMENT – WAP to access members using pointer to object members.

AIM OF THE EXPERIMENT:- Programs based on Run-time polymorphism.

FLOWCHART/ ALGORITHM:-

Algorithm:-

Step.1. Start

Step.2. Create a random class as private access specifier let that class be number class.

Step.3. Create a constructor to initialize the variable.

Step.4. Declare a member void number function to get input

Step.5. Declare a member void display number to display output

Step.6. Create a main function for simple access the functions we will create a normal class object that will call the function in the class by ‘.’ dot operator.

Step.7. Declare a pointer object of class number type.

Step.8. Assign new Number memory created at run time using ‘new’ to pointer variable.

Step.9. Call member functions and return

Step.10.End.

PROGRAM CODE:-

#include <iostream>

using namespace std;

class Number

{

private:

int num;

public:

//constructor

Number(){ num=0; };

//member function to get input

void inputNumber (void)

{

cout<<"Enter an integer number: ";

cin>>num;

}

//member function to display number

void displayNumber()

{

cout<<"Num: "<<num<<endl;

}

};

//Main function

int main()

{

//declaring object to the class number

Number N;

//input and display number using norn object

N.inputNumber();

N.displayNumber();

//declaring pointer to the object

Number \*ptrN;

ptrN = new Number; //creating & assigning memory

//printing default value

cout<<"Default value... "<<endl;

//calling member function with pointer

ptrN->displayNumber();

//input values and print

ptrN->inputNumber();

ptrN->displayNumber();

return 0;

}

ERRORS ENCOUNTERED DURING PROGRAM’S EXECUTION

(Kindly jot down the compile time errors encountered)

NA

PROGRAMS’ EXPLANATION (in brief)

In this program we accessing members using pointer to object member firstly we creating a class number as private access specifier then we we creating a constructor and initialize data member after that we declaring a member void number function to get input and declaring another member void display number to display output then we creating a main function for simple access the functions we will create a normal class object that will call the function in the class by ‘.’ dot operator and declaring a pointer object of class number type Assigning new number memory created at run time using ‘new’ to pointer variable then we Calling member functions and returing numbers after that displaying numbers in output screen.

OUTPUT:-

Enter an integer number: 6

Num: 6

Default value...

Num: 0

Enter an integer number: 5

Num: 5

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Process exited after 4.59 seconds with return value 0

Press any key to continue . . .

# EXPERIMENT NUMBER –Practical 2.3.3

STUDENT’S NAME – Satyam kumar navneet

STUDENT’S UID – 20BCS4588

CLASS AND GROUP –CSE-IOT-B

SEMESTER – 2nd

TOPIC OF EXPERIMENT – WAP to design a class representing the information regarding digital library (books, tape: book & tape should be separate classes having the base class as media).The class should have the functionality for adding new item, issuing, deposit etc. The program should link the objects with concerned function by the concept of runtime polymorphism.

**AIM OF THE EXPERIMENT** **Programs based on Run-time polymorphism.**

FLOWCHART/ ALGORITHM

**Algorithm:-**

**Step.1. Start**

**Step.2. Create a base class media with the required variables in private such as title and price.**

**Step.3. Create the constructor of the class to initialize the variables.**

**Step.4. Create a virtual void display to display the output**

**Step.5****.** **Take input from user as title**

**Step.6.** **Take input from user as number of pages**

**Step.7. Create a void tape function**

**Step.6. Take input from user as title**

**Step.7. Take input from user as number of pages**

**Step.8. Create a main function**

**Step.9. Call member function and return**

**Step.10. End**

PROGRAM CODE:-

#include<iostream>

#include<string.h>

using namespace std;

class media

{

protected:

char title[50];

float price;

public:

media(char \*s, float a)

{

strcpy(title, s); price = a;

}

virtual void display(){}

};

class book : public media

{

int pages; public:

book(char \*s, float a, int p) : media(s,a)

{

pages = p;

}

void display();

};

class tape : public media

{

float time; public:

tape(char \* s, float a, float t):media(s,a)

{

time =t;

}

void display();

};

void book ::display()

{

cout<<"\n Title:"<<title;

cout<<"\n Pages:"<<pages; cout<<"\n Price:"<<price;

}

void tape ::display ()

{

cout<<"\n Title:"<<title;

cout<<"\n Play Time:"<<time<<"mins"; cout<<"\n Price:"<<price;

}

int main()

{

char \* title = new char[30]; float price, time;

int pages;

cout<<"\n Enter Book Details \n"; cout<<"\n Title:";

cin>>title; cout<<"\n Price:"; cin>>price; cout<<"\n Pages:"; cin>>pages;

book book1(title, price, pages);

cout<<"\n Enter Tape Details";

cout<<"\n Title:";

cin>>title;

cout<<"\n Price:";

cin>>price;

cout<<"\n Play Times(mins):";

cin>>time;

tape tape1(title, price, time);

media\* list[2];

list[0] = &book1;

list[1] = &tape1; cout<<"\n Media Details";

cout<<"\n..............Book. ";

list[0]->display ();

cout<<"\n..............Tape. ";

list[1]->display ();

return 0;

}

ERRORS ENCOUNTERED DURING PROGRAM’S EXECUTION

(Kindly jot down the compile time errors encountered)

NA

PROGRAMS’ EXPLANATION (in brief)

In this program we designing a class which will represent the information regarding digital library such as books, tape: book & tape should be separate classes having the base class as media. Firstly we creating a base class media with the required variables in private such as title and price.Usinging the strcpy function of string we copies one string to another and Next two classes named book and tape will inherit the base class media with some certain required different variables such as in book pages will be added and in tape time will be added and initialization of variables will be done with constructor for each classes and the display will be done by friend or member function.In main function we will enter the name, price time and pages and according to the function argument we will pass these initialized variables to their respective functions after that we displaying output in console.

OUTPUT:-

**Enter Book Details**

**Title:NOTHING**

**Price:1299**

**Pages:1456**

**Enter Tape Details**

**Title:something**

**Price:399**

**Play Times(mins):2899**

**Media Details**

**..............Book.**

**Title:NOTHING**

**Pages:1456**

**Price:1299**

**..............Tape.**

**Title:something**

**Play Time:2899mins**

**Price:399**

**--------------------------------**

**Process exited after 145.2 seconds with return value 0**

**Press any key to continue . . .**

LEARNING OUTCOMES

|  |
| --- |
| * Identify situations where computational methods would be useful. |
| * Approach the programming tasks using techniques learnt and write pseudo-code. |
| * Choose the right data representation formats based on the requirements of the problem. |
| * Use the comparisons and limitations of the various programming constructs and choose the right one for the task. |

EVALUATION COLUMN (To be filled by concerned faculty only)

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr. No.** | **Parameters** | **Maximum**  **Marks** | **Marks**  **Obtained** |
| 1. | Worksheet Completion including writing learning objective/ Outcome | 10 |  |
| 2. | Post Lab Quiz Result | 5 |  |
| 3. | Student engagement in Simulation/ Performance/ Pre Lab Questions | 5 |  |
| 4. | Total Marks | 20 |  |