**LAB 3(2081/04/05)**

**TITLE:TO ILLUSTRATE THE CONCEPT OF CONSTRUCTOR(DEFAULT,PARAMETERIZED AND COPY)AND DESTRUCTORS IN C++.**

**OBJECTIVE:**

1.Understand the fundamental concepts of constructors and destrucutors in c++.

2.Differentiate between different types of constructors.

3.Get the knowledge about how to create and use constructors and destructors..

**THEORY:**

Constructors, are the building blocks of object-oriented programming. They are special member functions responsible for initializing objects of class.Constructors are called automatically when an object is created.Constructors have no return types.

**Types of constructors:**

**1.Default Constructor:** It is the simplest form of constructor. It doesn’t accept any arguments and is invoked when an object is created without any parameters.Such type of constructor is automatically called when an object of class is created.

**2.Parameterized Constructor:** It accepts one or more parameters during object creation.Such type of constructors enable us to set the initial value of data members based on the arguments provided during object instantiation,making your code more flexible.

**3.Copy Constructor:**It is a specialized constructor that takes an object of the same class as its parameter. Its primary purpose is to create a new object that is an exact copy of the existing object.Copy Constructors come to play when objects are passed by value or when objects are returned from functions.

**Destructor: A d**estructor in C++ is a special member function of a class that plays ra crucial role in the process of managing resources and performing cleanup operations when an object of that class goes out of the scope.Its primary purpose is to deallocate any resources that the class has acquired during its lifetime,ensuring that there are no memory leaks in the program.

1. **Write a class Person with a constructor that initializes the name and age of the person.Also write method to display the information of person.**

//SOURCE CODE:

#include<iostream>

using namespace std;

class Person{

private:

string name;

int age;

public:

Person( string n , int a){

name=n;

age=a;}

void display(){

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

}

};

int main(){

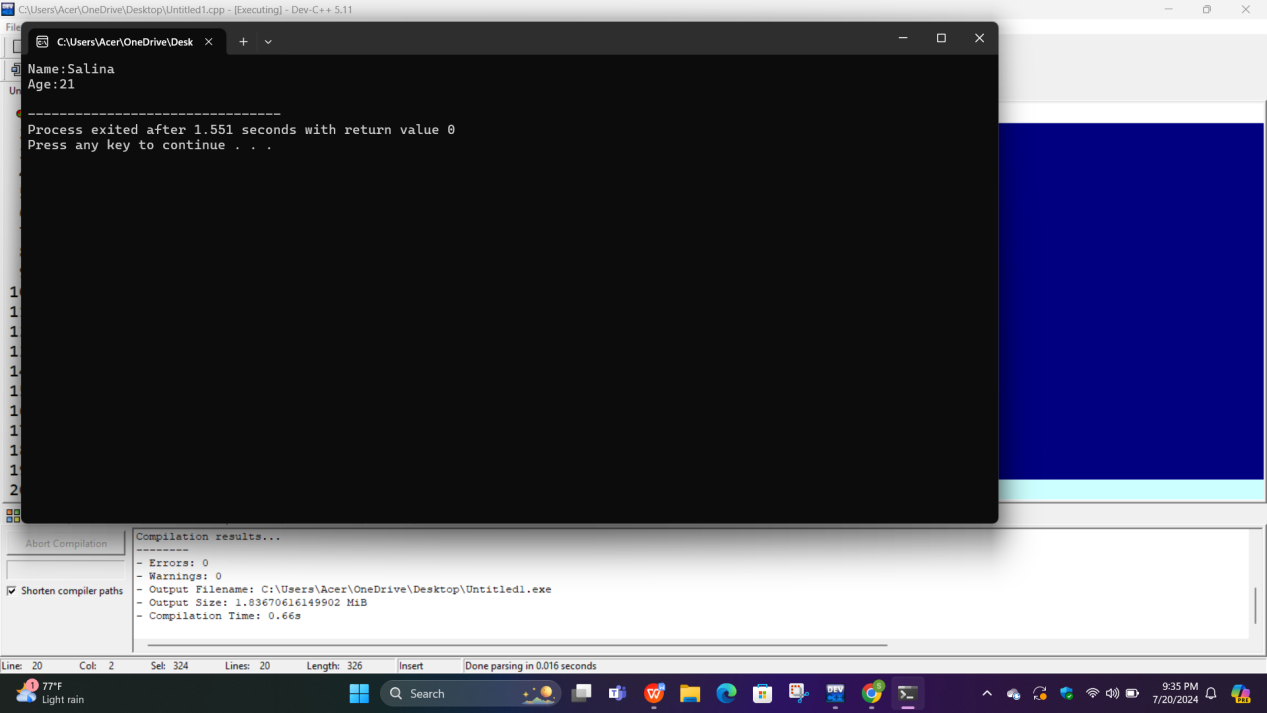
Person p1("Salina" , 21);

p1.display();

return 0;

}

**OUTPUT:**

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**2.Write a program to demonstrate the use of different types of constructors in C++.**

**//SOURCE CODE:**

#include<iostream>

using namespace std;

class customer

{

string name;

int accout\_number;

int balance;

public:

//default Constructor//

customer ()

{

name="Samikshya";

accout\_number=45;

balance=1000;

}

//parametrized Constructor//

customer (string a,int b,int c)

{

name=a;

accout\_number=b;

balance=c;

}

//copy Constructor//

customer (customer &a)

{

name=a.name;

accout\_number=a.accout\_number;

balance=a.balance;

}

void display()

{

cout<<"Name:"<<name<<endl;

cout<<"Acccout number:"<<accout\_number<<endl;

cout<<"Balance:"<<balance<<endl;

}

};

int main()

{

customer c1;

customer c2("Samikshya",50,2000);

customer c3(c1);

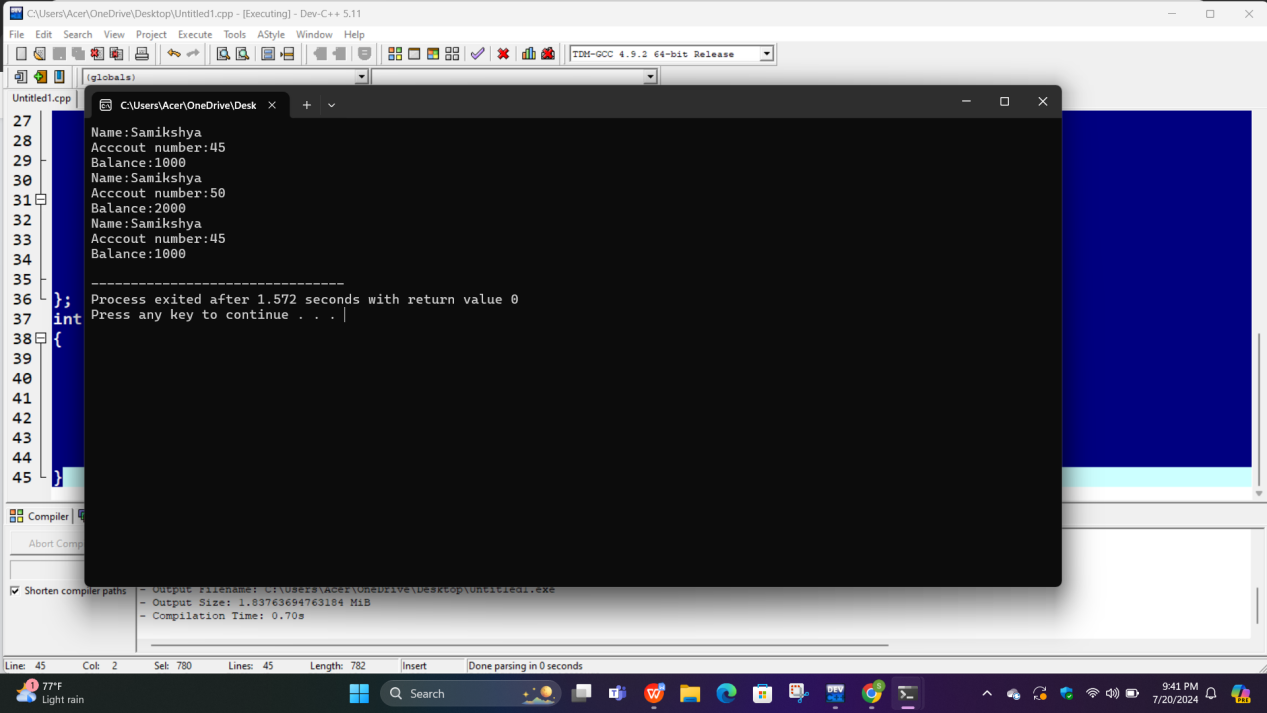
c1.display();

c2.display();

c3.display();

}

**OUTPUT:**

****

**CONCLUSION:**

In this lab,we explored the concept of constructors in c++.

1. Default constructors set default values for object members.
2. Parameterized constructors allow customied initialization.
3. Copy constructors create new objects as copies of existing ones.Understanding and utilizing constructors are vital skills in OOP.