

## Green University of Bangladesh

**Department of Computer Science and Engineering (CSE) Faculty of Sciences and Engineering**

**Semester: (Spring, 2023), B.Sc. in CSE (Day)**

**LAB REPORT NO: 07**

**Course Title: Object Oriented Programing Lab**

**Course Code: CSE 202 Section: DE**

**Student Details**

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Submission Date : **16/**0**5**/2023

**Course Teacher’s Name** : **Dr. Muhammad Aminur Rahaman**

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| **Lab Report Status**  **Marks: ………………………………… Signature:..................... Comments:.............................................. Date:..............................** |

##### 1. TITLE OF THE LAB EXPERIMENT:

* Create an interface isEmergency with only one method - soundSiren which takes no arguments and returns

no value.

* Write a class FireEmergency that implements the IsEmergency interface. The soundSiren method should

print "Siren Sounded".

* Write a class SmokeAlarm that does not implement any interface. The class has an empty body.
* Create an array of Object class, myArray in the main method.
* Construct 2 SmokeAlarm object and add it to the array myArray in the main method.
* Construct 2 FireEmergency object and add it to the array myArray in the main method.
* In the main method, write a for loop, to print which array elements are instances of classes that implement

the IsEmergency interface and if so, call the soundSiren method.

**2. OBJECTIVES**

* To solve problems using the concept of interface.
* To gather knowledge of how interface works.
* Understand multiple inheritance using a class implementing multiple interfaces.

##### 3. ALGORITHM

Step-1 : Start

Step-2 : . Implement the IsEmergency interface in the FireEmergency class and provide the implementation for the soundSiren method.

Step-3 : Create the SmokeAlarm class without implementing any interface.

Step-4 : In the main method:

1. Create an array myArray of Object class with a size of 4.
2. Create two SmokeAlarm objects and assign them to myArray at index 0 and 1.
3. Create two FireEmergency objects and assign them to myArray at index 2 and 3.
4. Iterate over myArray using a for-each loop.
5. Check if each element is an instance of a class implementing the IsEmergency interface.
6. If it is, cast the element to IsEmergency and call the soundSiren method.

This program creates an array of objects and checks if each element is an instance of a class implementing the IsEmergency interface. If so, it calls the soundSiren method on that element.

**4. IMPLEMENTATION**

// Step 1: Define the isEmergency interface

interface IsEmergency

{

void soundSiren ();

}

// Step 2: Implement the IsEmergency interface in the FireEmergency class

class FireEmergency implements IsEmergency

{

@Override

public void soundSiren ()

{

System.out.println ("Siren Sounded");

}

}

// Step 3: Create the SmokeAlarm class without implementing any interface

class SmokeAlarm

{

// Empty class body

}

public class Main

{

public static void main (String[]args)

{

// Step 4: Create an array of Object class, myArray

Object[]myArray = new Object[4];

// Step 5: Construct SmokeAlarm objects and add them to myArray

myArray[0] = new SmokeAlarm ();

myArray[1] = new SmokeAlarm ();

// Step 6: Construct FireEmergency objects and add them to myArray

myArray[2] = new FireEmergency ();

myArray[3] = new FireEmergency ();

// Step 7: Iterate over myArray and check for instances of classes implementing IsEmergency interface

for (Object obj:myArray)

{

if (obj instanceof IsEmergency)

{

IsEmergency emergency = (IsEmergency) obj;

emergency.soundSiren ();

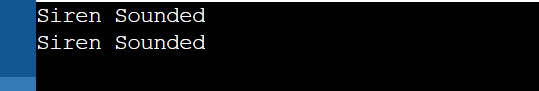
}

}

}

}

**5. TEST RESULT**



**6. ANALYSIS & DISCUSSION**

The program creates two FireEmergency objects and adds them to the myArray at index 2 and 3.

During the iteration over myArray, it checks if each element is an instance of a class implementing the IsEmergency interface.

In this case, the FireEmergency class implements the IsEmergency interface, so the soundSiren method is called on those elements.

As a result, the message "Siren Sounded" is printed twice.