JAVA PROGRAMMING QUESTION

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1. Create an interface for library application add atleast two interface methods for renewal of books and renewal day calculation and amount calculation. Create two classes as student and faculty. Try to implement the interface methods in the classes.

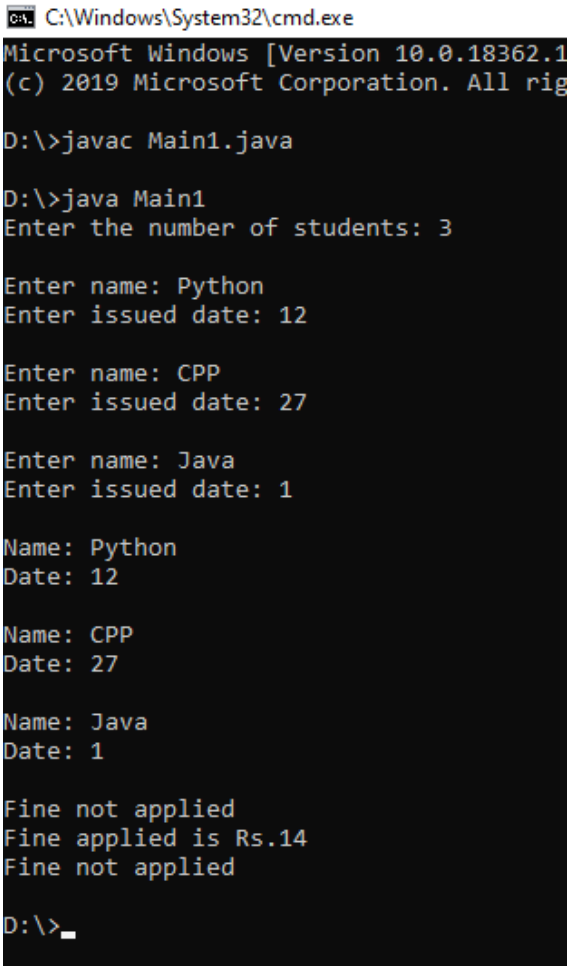
Program:

```
import java.util.Scanner;
interface Renewal_date{
	void getDate(int date);

}
interface Fine_amount{
	void calculate_fine(int d1);
}
class students implements Renewal_date{
	String name;
	int date;
	int temp;
	public void get(String name, int i_date){
		name = name;
		date = i_date;
		//System.out.println("\nStudent class\n");
	}
	public void getDate(int date){
		date = date + 15;
		if(date + 15 > 30){
			temp = date - 30;
			System.out.println("The renerwal date is " +
String.valueOf(temp));
		}
		else{
			temp = date;
			System.out.println("The renerwal date is " +
String.valueOf(temp));
		}
	}
	public void display(String name1){
		System.out.println("Name: " + name1);
		System.out.println("Date: " + String.valueOf(date));
		System.out.print("\n");
	}
	public int date(int i_date){
		return temp;
	}
}
class faculty implements Fine_amount{
	int d1;
	public void cal(int i_date){
		this.d1 = i_date;
		//System.out.println("\nFaculty class\n");
```

```
	}
	public void calculate_fine(int d1){
		if(d1 > 20){
			System.out.println("Fine applied is Rs." +
String.valueOf((d1 - 20)*2));
		}
		else{
			System.out.println("Fine not applied");
		}
	}
	//System.out.print();
}
public class Main1{
	public static void main(String... args){
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter the number of students: ");
		int n = sc.nextInt();
		System.out.print("\n");
		int[] arr = new int[n];
		String[] arr1 = new String[n];
		students[] obj1 = new students[n];
		faculty[] obj2 = new faculty[n];
		for(int i = 0; i < n; i++) {
			System.out.print("Enter name: ");
			String name;
			name = sc.next();
			arr1[i] = name;
			System.out.print("Enter issued date: ");
			int i_date;
			i_date = sc.nextInt();
			arr[i] = i_date;
			obj1[i] = new students();
			obj1[i].get(name,i_date);
			obj2[i] = new faculty();
			obj2[i].cal(i_date);
			System.out.print("\n");
		}
		for(int i = 0; i < n; i++){
			obj1[i].display(arr1[i]);
		}
		for(int i = 0; i < n; i++){
			obj2[i].calculate_fine(arr[i]);
		}
	}
}
```

Output



2. create an abstruct class Student with concreate method and abstruct method. Try to create a class Fulltime and define the abstuct class inside fulltime. Create an object referecne to refer the fulltime object and access the abstruct method.

Program:

```
abstract class Student{
    Student(){}
    abstract void display();
    void dispalymarks(){
        System.out.println("Abstract method executed");
    }

}

class FullTime extends Student{
```

```
    FullTime(){}
    public void display(){
        System.out.println("Concrete Method executed");
    }
}

public class Abstructdemo{
    public static void main(String args[]){
        Student f = new FullTime();//refer the fulltime object and access
the abstruct method
        f.display();
        f.dispalymarks();
    }
}
```

Output