IT-22044 — Anik Mollik

Program-1

```
Class classObject{
  String name;
  int age;
 void display() {
system.out.println("My name is Anik");
 }
}
public class objectclass {
  public static void main (String[] args)

  class obj
    classobject m1 = new classobject ;
        m1.name = 'Anik';
        m1.age = 23;
        m1.display()

}
```

output : Anik

Program-2: Access Modifier

```
class Person {
    private String name;
    public void setName(String newName) {
        name = newName;
    }
    public String getName() {
        return name;
    }
}
public class accessModifiers {
    public static void main(String[] args) {
        Person p = new Person();
        p.setName("Atif");
        System.out.println(p.getName());
    }
}
```

Output:

Program 3: Inheritance and Protected Access

```
class Student {

    Protected String type = "Atif";
    void display(){

      System.out.println("I am a student");

  }
class Teacher extends Student {

      void ungue() { System.out.println(type+

                    " is a ~~bandit~~ backbenchen");

    }

class Inheritance {

      public static void main(String[] args)

      {
          Teacher t = new Teacher();

          t.display();
          t.ungue();

      }
}
```

Output:

I am a student

Program 4: Encapsulation

```
import java.util.*;
class BankAccount {
    private double balance;
public void deposit(double amount)
{
   if(amount>0)
   {
     balance=balance+amount;
    }
}
public double getBalance(){
    return balance;
  }
}
 public class Encapsulation{
public static void main(String[]args)
{
 Scanner sc=new Scanner(System.in);
BankAccount acc=new BankAccount();
System.out.print("Enter amount to deposit:");
double amount=sc.nextDouble();
```

```
acc.deposit(amount);
System.out.println("Current Balance:" +
                    acc.getBalance());
```

Output:

```
Enter amount to deposit: 100
Current Balance: 100.0
```

Program-5: Abstract classes

```
abstract class Creature {
    abstract void makeSound();
    void run() {
        System.out.println("Running.....");
    }
}
class Goat extends Creature {
    void makeSound() {
        System.out.println("Maaaaaaaa...");
    }
}
public class AbstractClass {
```

```
public static void main(String[] args) {
        Goat g=new Goat();
        g.makeSound();
        g.run();
    }
}
```

Output:

```
Maaa--aaa
Running.....
```

Program 6: Interface

```
interface Animal {
    void sound();
}
class Cow implements Animal{
    public void sound(){
    System.out.println("Hamba");
    }
}
public class InterfaceCode{
        public static void main(String[] args) {
```

```
Cow d = new Cow();
d.sound();
}
}
```

Output:

```
Hamba
```

Program-7: Multiple Inheritance

```
interface Bankable{
    void bank();
}
interface playable{
    void play();
}
class Dog implements Bankable, playable{
    public void bank(){
        System.out.println("Dog is banking....");
    }
    public void play(){
        System.out.println("Shakib is playing....");
    }
```

```
}
public class multipleInterface {
    public static void main (String[] args) {
        Dog d= new Dog();
        d.bank();
        d.play.();
    }
}
```

Output:

```
Dog is banking.....
Shakib is playing.....
```

Program-8: ATM machine

```
import java.util.*;
public class ATM {
    private double balance = 10000.0;
    public void deposit (double amount) {
        if (amount>0) {
            balance=balance+amount;
        }
```

println("Success
: $" + amount);

}

else {

System.out.println("Invalid amount! Please
enter a positive number.");

}

}

public void withdraw(double amount) {

if(amount > 0) {

if(amount <= balance) {

balance = balance - amount;

}

else {

System.out.println("Invalid amount!
Please enter a positive number.");

}

}

public void checkBalance() {

System.out.println("Current Balance:
$" + balance);

```
public static void main(String[] args) {
        ATM atm=new ATM();
        Scanner sc=new Scanner();
System.out.println("Welcome to ATM Machine");
while(true){
  System.out.println("\n Please choose an option:");
  System.out.println("1. Deposit");
  System.out.println("2. Withdraw");
  System.out.println("3. Check Balance:");
  System.out.println("4. Exit");
  System.out.print("Youn choice:");
  int choice=sc.nextInt();
  switch(choice){
     case 1:
        System.out.print("Enter deposit amount:");
        atm.deposit(sc.nextDouble());
        break;
     case 2:
        System.out.println("Enter withdrawal
                            balance:");
                            amount
```

```
                sc.nextDouble()
        atm.withdraw();
        break;

        case 3:
        atm.checkBalance();
        break;

        case 4:
          System.out.println("Thank you for using
                our ATM! Goodbye!");
          System.exit(0);
          break;
        default:
          System.out.println("!Invalid option.Please
                try again.");
```

Output:

```
0 Please choose an option:
1 ~~Witt~~ Deposit
2. Withdraw
3. Check Balance
4. Exit
```

Your choice: 1

Enter deposit amount: 5000

Successfully deposited: $5000.0

0 Please choose an option

1. Deposit

2. Withdraw

3. Check Balance

4. Exit

Your choice: 2

Enter withdrawal amount: 1000

Successfully withdrawn: $1000.0

0 Please choose an option

1. Deposit

2. Withdraw

3. Check Balance

4. Exit

Your choice: 4

Thank you for using our ATM! Goodbye!

Program-9: Calculator

```
impont java.util.*;
public class Calculator {
    public void static main (String[] args) {
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter the first number:");
        double num1 = sc.nextDouble();
        System.out.println ("Enter the second number:");
        double num2 = sc.nextDouble();
        System.out.println("□ Choose an Operation:");
        System.out.println("+ Addition (+)");
        System.out.println("- Subtraction (-)");
        System.out.println("× Multiplication (*)");
        System.out.println("÷ Division (/)");
        System.out.println("Youn choice:");
        char op = sc.next().charAt(0);
        double result = 0;
        boolean valid = true;
```

```
System.out.println("Calculating:.....");

switch(op){

  case '+': result = num1+num2; break;

  case '-': result=num1-num2; break;

  case '*': result=num1*num2; break;

  case '/':

    if(num2!=0)

      result=num1/num2;

    else{

      System.out.println("X cannot divide by 0!");

      valid=false;

    }

    break;

  default:

    System.out.println("Invalid operation selected

    valid=false;

}
```

```
        if (valid) {
            System.out.println("✓ Result: " + result + ");
        } System.out.println("Thank you for using
                                the calculation!");
    }
```

Output:

```
Enter the first number:
100
Enter the second number:
200
□ Choose an operation:
+ Addition (+)
- Subtraction (-)
× Multiplication (*)
÷ Division (/)
Your choice:
*
Calculating: .....
✓ Result: 20000.0
Thank you for using the calculation!"
```