Q1) Create a java package called Lab10-Q1 with a class called Q1 that has the main function with the below code.

```
public static void main(String[] args) {
        Animal[] pet = new Animal[2];
        pet[0] = new Dog("Buddy",41);
        pet[1] = new Cat("Whiskers",4);

        for (Animal i : pet) {
                System.out.println("The pet name is " + i.getName()
                + " and it weights " + i.getWeightPounds() + " pounds and says " + i.speak() );
        }
}
```

Inside the java package add a base class called Animal, and two subclasses of Animal called Cat and Dog.

An Animal should have a name and a weight, and be able to speak. A cat should “meow” and a dog should “bark”

You should have the following functions

```
public Animal(String animalName, int lbs)
public int getWeightPounds()
public void setWeightPounds(int lbs)
public String getName()
public void setName(String animalName)
public String speak()
```

Using the above driver the output of your program should be:

```
The pet name is Buddy and it weights 41 pounds and says Bark
The pet name is Whiskers and it weights 4 pounds and says Meow
```

Q2) Create a java package called Lab10-Q2 with a class called Q2 that has the main function with the below code.

```
public static void main(String[] args) {
        Mustang mustang = new Mustang();
        mustang.changeGear(2);
        mustang.speedUp(50);
        mustang.applyBrakes(10);

        System.out.println("Mustang present state :");
        mustang.printStates();
}
```

Inside the same package create an interface named Car that has the following methods.

```
void changeGear(int a);
void speedUp(int a);
void applyBrakes(int a);
```

Create a class called Mustang that implements the Car interface. The Mustang class should have the following

```
private int speed = 0;
private int gear = 0;
```

public void changeGear(int newGear)-changes the Mustang gear

public void speedUp(int increment)-increase the Mustang speed

public void applyBrakes(int decrement)-decrease the Mustang speed

public void printStates()-prints out the Mustang current speed and gear

Using the above driver the program should output the following

```
Mustang present state :
speed: 40
gear: 2
```

Q3) Create a Java program that gets user input to create a text file of the name the user entered. Then have the user write to the text file. The user should be able to write numbers to the text file until they enter -1, and that will stop the program from writing to the file and close the file.

Your program should have similar output to the below example output.

Standard Output: Enter file name:
Standard Input: test
Standard Output: Enter integers to add to the file. Enter -1 when want to stop
Standard Input: 1
Standard Output: 1 added to test
Standard Input: 2
Standard Output: 2 added to test
Standard Input: 3
Standard Output: 3 added to test
Standard Input: 4
Standard Output: 4 added to test
Standard Input: -1
Standard Output: Numbers written to test, file closed

The above example would save out a file named “test.txt” in the same directory as the program. The “test.txt” would have the below inside of it.

1
2
3
4