Quiz 7   **Name:** _____

1. You get a runtime error when running the Main class which is shown in the stack trace below:

```
C:\quiz6>java Mystery
Exception in thread "main" java.io.FileNotFoundException: whatever.txt (No
such file or directory)
      at java.base/java.io.FileInputStream.open0(Native Method)
      at java.base/java.io.FileInputStream.open(FileInputStream.java:219)
      at java.base/java.io.FileInputStream.<init>(FileInputStream.java:157)
      at java.base/java.util.Scanner.<init>(Scanner.java:639)
      at Magician.waveWand(Magician.java:7)
      at Mystery.doX(Mystery.java:4)
      at Mystery.doY(Mystery.java:9)
      at Mystery.main(Mystery.java:14)
```

Where should you look at for the cause of the problem?   **[2 marks]**

Answer: At line 7 of Magician.java

2. Given the following classes:

```
public class FoodPoisoningException extends RuntimeException  {
   public FoodPoisoningException(String message){
       super(message);
       System.out.println("apple");
   }
}
```

```
public class NoCurryPokException extends Exception {
   public NoCurryPokException(String message){
       super(message);
       System.out.println("grape");
   }
}
```

```java
import java.util.Scanner;

public class CurryPokApp {
    private static int CURRYPOK_NUMBER = 13;

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a curry pok amount> ");
        int amount = sc.nextInt(); //assume enters 20
        try {
            System.out.println("apple");
            getCurryPok(amount);
            System.out.println("yum");
        } catch (NoCurryPokException e) {
            System.out.println(e.getMessage());
        } finally {
            System.out.println("pear");
        }
        System.out.println("durian");
    }

    public static void getCurryPok(int amount) throws NoCurryPokException {
        try {
            System.out.println("Orange");
            if (amount > CURRYPOK_NUMBER) {
                throw new NoCurryPokException("not enough");
            }
            if (amount == CURRYPOK_NUMBER) {
                throw new FoodPoisoningException("poison");
            }
        } finally {
            System.out.println("close door");
        }
    }
}
```

[2 marks] What is the output of the program if the user enters 20 for the amount?

Answer:

```
C:\quiz>java CurryPokApp
Enter a curry pok amount> 20


apple
Orange
grape
close door
not enough
pear
durian

```

[2 marks] What is the output of the program if the user enters 13 for the amount?

Answer:

```
C:\quiz>java CurryPokApp
Enter a curry pok amount> 13



apple
Orange
apple
close door
pear
Exception in thread "main" FoodPoisoningException: poison
     at CurryPokApp.getCurryPok(CurryPokApp.java:29)
     at CurryPokApp.main(CurryPokApp.java:12)




```

3. **[4 marks]** Given the following class:

```java
public class Student {
    private int age;

    public Student(int age) {
        this.age = age;
    }

    public int getAge() {
        return age;
    }

    public void setAge(int age) {
        this.age = age;
    }

    @Override
    public String toString() {
        return "" + age;
    }
}
```

Draw the memory state diagram for the following program at the point of time when the program reaches line 7:

```java
1    import java.util.*;
2
3    public class Quiz {
4       public static void doMagic(List<Student> all) {
5           List<Student> copy = all;
6           copy.add(new Student(2));
7           //How does the memory state diagram look here?
8       }
9
10      public static void main(String[] args) {
11          List<Student> all = new ArrayList<>();
12          all.add(new Student(4));
13          doMagic(all);
14          System.out.println(all);
15      }
16
17   }
```

Answer: