Programming 1

Tutorial 7

Activity 1

Implement a class `Employee`. An employee has a name and a salary. Provide a constructor with two parameters:

```
public Employee(String employeeName, double currentSalary)
```

and methods:

```
public String getName()
public double getSalary()
public void raiseSalary(double byPercent)
```

These methods return the name and salary, and raise the employee's salary by a certain percentage. Sample usage:

```
Employee em = new Employee("Harry Jones", 50000);
em.raiseSalary(10); // Harry gets a 10 percent raise
System.out.println(em.getName() + " is paid $" + em.getSalary() + "/month");
```

Supply an `EmployeeTester` class that tests all methods.

Deliverable

Employee.java
EmployeeTester.java

Activity 2

Write a program that reads an integer and output its binary form. This exercise was already included in a previous tutorial. However, this time you're required to implement a **recursive** method to convert a decimal integer into a binary string.

Deliverable

RecursiveDec2Bin.java

Activity 3

Write and run a recursive method to reverse a string.

Expected result

```
Enter a string: helloworld
The reverse string is: dlrowolleh
```

Deliverable

RecursiveStringReverse.java

Activity 4

(optional)

Write a program that reads a number between 1,000 and 999,999 from the user and prints it with a comma separating the thousands.

(*) Use what you've learned about exception handling to make sure the user enters a valid integer and that integer is between the required range.

Expected result

```
Please enter an integer between 1000 and 999999: 23456
23,456
```

Activity 5

(optional)

Ask user to enter a password. Measure its strength with the following rules:

- Length:
  - From 8 to 12, 1 point.
  - > 12, 2 points.
- Contains at least one uppercase letter: 1 point
- Contains at least one lowercase letter: 1 point
- Contains at least one digit: 1 point
- Contains non-alphanumeric characters (symbols): 1 point

Then rate the strength:

- 1-2 points: weak
- 3-4 points: medium

- 5-6 points: strong

Expected result

Case 1:

```
Enter a new password: 123456
Strength: 1 (weak)
```

Case 2:

```
Enter a new password: andrew1974
Strength: 3 (medium)
```

Case 3:

```
Enter a new password: peterX124%_beTTy
Strength: 6 (strong)
```