Lab 6 Parallel Arrays:

You will write a test plan and a Java program that processes employee payroll using several parallel arrays. The size of the array should be 100 elements with a constant that controls how many employees will be generated for this run of the program. Use constants for ALL constant values in the problem statement.

The test plan that will test your program's ability to calculate regular, overtime and total pay correctly for various numbers of hours less than 40, equal to 40 and greater than 40.

Array	Data Type	Represents
empNo	Int	Employee ID numbers
payRate	double	An employee's hourly pay rate, may include .50 values
hoursWorked	double	Hours worked during a week, may include quarter hours, like .25, .50 and .75
regularPay	double	pay earned for working 40 or fewer hours per week
overtimePay	double	pay earned for working more than 40 hours per week
totalPay	double	regularPay plus overtimePay

Each of these arrays will hold six employees. The index of the array coordinates or synchronizes the arrays. For instance, index 0 may refer to the employee who has empID 1000, whose pay rate is 10.25, who worked 50 hours. regularPay[0], overtimePay[0] and totalPay[0] then hold the results of the pay calculations.

Generate random values for the employee numbers, hours worked and pay rate arrays. The employee numbers should be between 1000 and 9999. The hours worked should be between 30 and 50 hours and should include quarter hours (.25, .50, and .75). The pay rate values should be between 7 and 20 dollars per hour, including .50 values. And do not generate duplicate employee numbers.

Use loops to control the below processes.

Calculate overtime pay as 1.75 times the pay rate times the number of hours worked over 40. If someone earns $10 per hour and works 45 hours, she has 5 hours of overtime resulting in overtime pay of 1.75 * $10 * 5 = $87.5. Total pay is 40 * $10, which is $400, plus overtime, $87.5, or $487.5 total.

Perform the pay calculations in a separate method that returns 3 values for the regular, overtime and total pay arrays. How will it return 3 values? Hint: they all have the same data type. If you can't figure out how to return multiple values, ASK for help!

After your program has finished the payroll calculations, pass all the arrays to a method that displays a payroll report which shows, for each employee, the empNo, payRate, hoursWorked, regularPay, overtimePay and totalPay. This method should produce a table of well-aligned columns with appropriate headers using System.out.printf.

Here is a sample report:

```
---------------------- PAYROLL REPORT ---------------------------------
Employee       Pay         Hours       Regular     Overtime      Total
 Number        Rate        Worked       Pay          Pay          Pay
--------     ------      --------    ---------   ----------    -------
  3073        19.00        48.50       921.50       282.63      1204.13
  7304        18.50        38.00       703.00         0.00       703.00
  4786        12.00        46.75       561.00       141.75       702.75
  4039        15.50        36.25       561.88         0.00       561.88
  8108        13.00        35.75       464.75         0.00       464.75
  7926        12.50        44.25       553.13        92.97       646.09
```

Be sure to review your output and verify it makes sense!

Can you see what's wrong with this output?

```
---------------------- PAYROLL REPORT ---------------------------------
Employee       Pay         Hours       Regular     Overtime      Total
 Number        Rate        Worked       Pay          Pay          Pay
--------     ------      --------    ---------   ----------    -------
  9073        19.00        48.50       921.50         0.00      1204.13
```