Due by June 6, 20
Final submission June 13, 20

The final Exercise

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11:00 AM(MT)

Final Exercise for Saturday Class Students

Objective:

This exercise is made for you to evaluate your knowledge on Java (on the topics like):

1. **Creating classes in java**
   - i. Naming convention
   - ii. Import
   - iii. Case sensitivity
   - iv. Formatting code
   - v. Adding comment //, /* */
   - vi. Definitions
   - vii. Punctation marks: ; . !! , == “” * { } ()
   - viii. Data types
   - ix. Variables
     - i. Naming variables
     - ii. Declaring vs initializing
     - iii. Using/calling variables
2. **Prompting users to interact with the program**
   - Print
   - Println
   - Concatenation
3. **Arithmetic operations**
   - Operators: +, -, *, /, % ...
4. **Conditional Statements**
   - If
   - Else
   - Else if
   - Logic and operators: and, or, not ...
5. **Loops**
   - For loop
   - While loop
   - Do while loop
6. **Libraries**
   - Scanner
   - Random
   - Math
   - Date
7. **Methods**
   - Creating methods
   - Calling methods
8. **String Class**
   - comparing, constructing, converting, finding, replacing, splitting...
9. **Formatting output**
   - Printf (%ns, %nd, %nf, %nc) where is number
   - \t, \n, \b, ...more
10. **File IO**
    - Write
    - Read
    - Manipulate the data

Problem: Assume that you are hired in a small business company to develop a program in which the business owner is interested to have a software which takes the employees first and last name, hours worked and pay rate of each employee to make a weekly payroll.

Some of the information you have been given

Input data named as "data.txt" and it has something like

```
Adaline Reichel 30 25
Santa Prosacco 40 20
Noemy Vandervort 47 30
Lexi OConner 28 24
Gracie Weber 32 18
Roscoe Johns 50 15
Marry Joseph 61 29
Emmett Lebsack 16 20
Keegan Thiel 25 30
Wellington Koelpin 40 32
Karley Kiehn 40 33
Doe Joe 63 40
```

Take the given information and Calculate

i. **Gross pay**
   i. Here's how they pay the employees
   ii. Hours less than or equal to 40 get paid regular
   iii. Hours greater than 40 &less than 60 get paid one & half for each hour they worked
   iv. Hours worked above 60 get paid double

ii. **Net pay**

iii. **Federal tax** cuts 10% from each employee regardless of marital status

iv. **State tax** cuts 4.63% from each employee regardless of marital status

v. **Other fee** cuts 8% from each employee regardless of marital status

vi. **Total fees** which is the sum of federal tax, state tax, and other fees

Needed output format

```
                    =============== SUMMARY ===============
                    ===== Fri May 29 14:37:44 MDT 2020 ====

FirstName  LastName  UserName     Hours  PayRate  GrossPay     TAKEHOME   FederalTax  StateTax   OtherFees    TotalFees

Adaline    Reichel   adarei89     30     25       750.00       580.28     75.00       34.73      60.00        169.73
Santa      Prosacco  sanpro52     40     20       800.00       618.96     80.00       37.04      64.00        181.04
Noemy      Vandervort noevan34    47     30       1515.00      1172.16    151.50      70.14      121.20       342.84
Lexi       OConner   lexoco88     28     24       672.00       519.93     67.20       31.11      53.76        152.07
Gracie     Weber     graweb6      32     18       576.00       445.65     57.60       26.67      46.08        130.35
Roscoe     Johns     rosjoh12     50     15       825.00       638.30     82.50       38.20      66.00        186.70
Marry      Joseph    marjos97     61     29       3538.00      2737.35    353.80      163.81     283.04       800.65
Emmett     Lebsack   emmleb49     16     20       320.00       247.58     32.00       14.82      25.60        72.42
Keegan     Thiel     keethi12     25     30       750.00       580.28     75.00       34.73      60.00        169.73
Wellington Koelpin   welkoe73     40     32       1280.00      990.34     128.00      59.26      102.40       289.66
Karley     Kiehn     karkie59     40     33       1320.00      1021.28    132.00      61.12      105.60       298.72
Doe        Joe       doejoe55     63     40       5040.00      3899.45    504.00      233.35     403.20       1140.55
```

Approach:

⇒ Please write one page of your approach for this problem and make sure you use proper names for class, methods, variables.

Name the class: Payroll

⇒ Name Variable as follow:

```
int hr;
int payRate;
double net_pay;
double gross;
double federalTax;
double stateTax;
double other_fees;
double totalFees;
String firstName;
String lastName;
String user_name;
```

Name methods like:

```
calulateGrossPay();
calculateNetPay();
generateUserName();
calulateFederalTax();
calulateStateTax();
calculateOtherFees();
calculateTotalFees();
```

Hint for the output

```
System.out.println("\n\t\t\t\t\t\t\t\t\t\t================ SUMMARY ================");
System.out.println("\t\t\t\t\t\t\t\t\t\t===== " + date + " ====");
```

```
System.out.printf("\n%8s%10s%10s%10s%8s%10s%13S%13s%10s%12s%15s", "FirstName", "LastName",
"UserName"," Hours",
    "\t PayRate","GrossPay", "TakeHome","FederalTax","StateTax", "OtherFees", "  TotalFees\n ");
```

```
System.out.printf("\n%-12s%-12s%-11s%-7d%-10d%-12.2f%-12.2f%-12.2f%-12.2f%-10.2f%-
12.2f",firstName,lastName,
    user_name,hr,payRate,gross,net_pay,federalTax,stateTax,other_fees, totalFees);
```

⇒ Explain him/her how you calculated each calculation

⇒ The source code and sample output

Thank you