Delta College

# CST 183
# Programming Assignment 3

Fall 2019
Instructor: T. Klingler

## Objective

To build a complete working Java program that applies control structures and file processing.

## Overview & Instructions

As a banker, you are responsible for reviewing

Input consists of a file of raw loan data (named loandata.txt) in the following format:

```
{name}  {principal}  {term}  {annualRate}  {creditRating}  {fee-optional}
```

Example data could be:

```
SMITH      20000  5 4.5 750
JOHNSON    18000  4 4.2 560 2.0
```

The principal amount is the loan request in dollars. The term is the duration of the loan in years. Note that some loan applicants with a low credit score (under 580) will be required to pay an up-front fee. In the example above, it implies that the customer would need to pay 2.0% of the $18,000 requested principal for the added risk to the bank for taking on the risky loan. For any loan applications without this field, simply list the fee as `$0.00`.

The formula for calculating monthly payment for a loan is:

$$P = \frac{r(PV)}{1-(1+r)^{-n}}$$

$$P = Payment$$
$$PV = Present\ Value$$
$$r = rate\ per\ period$$
$$n = number\ of\ periods$$

Note that the "periods" of the formula above are months. Therefore, be sure to convert ***n*** to months and furthermore define the rate ***r*** as a monthly rate ( i.e. annualRate / 12.0 ).

The loan payoff amount will be calculated as the monthly payment multiplied by the number of overall months of the loan. This is the amount the bank receives in total back from the borrower.

A typical credit score ranges from 300 to 850. A bank will rate a loan applicant based on this number. From the raw credit score in the data file, enter the credit rating description (i.e. **`Fair`**, **`Good`**, etc.) in your output report.

| Credit Score Range | Credit Rating |
|---|---|
| 300-579 | Very Poor |
| 580-669 | Fair |
| 670-739 | Good |
| 740-799 | Very Good |
| 800-850 | Exceptional |

Your output should appear as an organized, formal financial report summarizing each order in detail. You are free to write your output directly to the Java file console or you may choose to write the report to an external file. This will assist in maintaining the text formatting. An example format could be:

```
Customer    Principal  Rate  Years   Payment    Payoff      Fee    Credit Rating
xxxxxxxxx   $xxxxx.xx  x.x%   xx    $xxxx.xx  $xxxxx.xx  $xxx.xx   xxxxxxxxx
xxxxxxxxx   $xxxxx.xx  x.x%   xx    $xxxx.xx  $xxxxx.xx  $xxx.xx   xxxxxxxxx
  ... and so on ...
TOTALS      $xxxxx.xx             $xxxx.xx  $xxxxx.xx  $xxx.xx
```

After completing all output lines for each of the orders in the input file, write totals at the bottom of your report for the principal, monthly payments, loan payoff and fee columns. This implies accumulating the totals as you process them within the processing loop.

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## Deliverables

**Deliver** the following to the online course management system **dropbox** as your final product:

- **Upload** your **source code** (.java) file

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## Notice

This is an individual assignment. You must complete this assignment on your own. You may not discuss your work in detail with anyone except the instructor. You may not acquire, from any source (e.g., another student or an internet site), a partial or complete solution to a problem or project that has been assigned. You may not show another student your solution to an assignment. You may not have another person (current student, former student, tutor, friend, anyone) "walk you through" how to solve the assignment.

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