Nicole Bubencik

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Final Project - Student Loan Payoff Calculator

My program is a Student Loan Payoff Calculator. The output of this project is a payoff schedule of paying off each loan and lists the dates each loan will be fully paid off. This can help people plan their budget in order to pay off their student loans efficiently.

The user will be prompted to enter which payoff method they want to run for their set of loans. The first method is the avalanche Method. This method contributes what's left of the user’s monthly contribution after paying all the minimum amounts due to the loan with the highest accruing interest until that is paid off and goes down to the next highest interest rate. The next method is the snowball method. This method contributes what's left of the user’s monthly contribution after paying all the minimum amounts due to the loan with the highest principal until that is paid off and goes down to the next highest principal.

The user then is prompted to enter how many loans they have to be entered. For each loan the user enters the name of the loan, principal amount, interest rate, amount of interest already accrued, when the loan starts repayment, the minimum that will be due, and if the loan is unsubsidized or subsidized. Lastly the user is prompted to enter how much they wish to contribute each time.

The program creates loan instances for each loan the user entered and adds them to a list depending on the loan status. Unsubsidized loans not in active repayment go into the active interest list as a tuple with the next value in the tuple being 0, this represents the minimum due at that time. Any loan in active repayment also gets added to the active interest list with the second value in the tuple is the minimum due for the loan. All other loans get added to the other loans list with the second value in tuple being the date the loan starts active payment.

The two lists are then sorted by decreasing principal value and if calculating with the avalanche method then sorted by decreasing interest rate. I first sort by principal value because the snowball method calculates payoff that way and that in avalanche is sorted by interest rate and then high to low principal if loans have the same interest rate.

Until the loans are fully paid off the program will calculate the minimum due that month and determine the amount the user is paying over the minimum. The active interest loans are paid first paying the minimum due plus the extra amount until the extra amount is 0 then it just pays minimum due. Then it goes into paying the other loan list with any extra contribution money and checks to see if the loan is now in active repayment and adds it to the active interest list. The payment for each loan is saved for each month until payoff. The unsubsidized loans not in active repayment are checked and if in active repayment now updates the minimum amount in its tuple.

If the user inputs a contribution amount that is less than total minimum due at any point the program will exit and write to a file telling the user of the invalid payment otherwise two files are written to the user. The first one states the payment method used and how much is contributed each month, lists the loans and their payoff dates, and followed by each loans information like the name, principal amount, interest rate, total interest paid, minimum due, and date repayment starts. The second file is a breakdown of the schedule showing each month's contribution for each loan and the total balance outstanding on the loan after that payment.