**Activity 2: Presentation projects on different math scenarios**

**Background**

According to the National Consumer Law Center “loans for minority borrowers were historically marked up higher – in some cases by as much as six time the rates for white borrowers” (Glover, Lacie, et al., 2018).

The following activities will provide valuable hints to students with difference socio-economic, ethnic and racial backgrounds, on protecting them-selves, their families and friends from “loan sharking”.

Students will be confronted with real-life loan scenarios, where they will learn how to:

* Protect one-self from loan sharking, by diffusing the tension and intimidation caused by the presence of a loan provider
* Gather key components information, before meeting with the loan provider
* Assess each scenario’s offer, and make informed decision.
* Build a personal payment schedule and control the overall budget of the loan
* Present their scenario to their peers, and teach them how to benefit from their loan model
* Embrace growth mind set and augment their learning by comparing their pre- and post-presentation KWL chart (see both Annex A&B).

**Presentations Project**

*Note: The following scenarios should be assigned (a week ahead), as presentation projects, and presenters need to investigate different elements of their project outside of class.*

 *Instructor might check on the progress, by providing 5-10min for in class group project discussion. Instructor might also recommend office hours to address any challenges with these presentations.*

*Each in-class presentation can take 15-20min with 5min for Q/A*

**Scenario 1**: Understanding the difference between Simple, Compound and Continuous Interests.

For this presentation, you will need to conduct a research on the difference between simple, and compound interests. Then you will need to apply what you learned to different scenarios, summarize your findings, and present them to class. To guide your presentation, follow these instructions:

* Use this recommended [article](https://betterexplained.com/articles/a-visual-guide-to-simple-compound-and-continuous-interest-rates/), as a resource for understanding the difference between simple and compound interests
* Complete the KWL Chart (see Annex A) on both simple and compound interest.
* Think about a scenario where you will be charged simple interest.
* Imagine you are borrowing a specific amount of money, under a simple interest condition. Refer to “Student’s Handouts for In-class Activities” (under “Credit Cards”), and work out a monthly payment schedule (using an Excel table). On this schedule, show the updated balance after each month.
1. Plot the data (using Excel) to show the payment trajectory versus number of months.
2. Similarly, provide a scenario where you will be charged compound interest.
3. Imagine you are borrowing a specific amount of money, under a compound interest condition. Refer to “Student’s Handouts for In-class Activities” (under “Credit Cards”), and work out a monthly payment schedule (using an Excel table). On this schedule, show the updated balance after each month.
4. Plot the data (using Excel) to show the payment trajectory versus number of months.
* Finally, compare both scenarios, and state similarities (if any) and differences.
* Conclude which case would be better for you as a borrower? Based on what did you make this decision?
* Summarize your presentation by providing some useful hints to your peers, while borrowing money. What criteria should they negotiate to make an informed decision on the best deal?
* Complete the KWL Chart (see Annex B) on both simple and compound interest.

**Scenario 2**: Which bank is offering me a better deal on a car loan?

For this presentation, you will need to conduct a research on compound interest. Then you will need to apply what you learned to the following scenario, summarize your findings, and present them to class. To guide your presentation, follow these instructions:

* Use this recommended [article](https://betterexplained.com/articles/a-visual-guide-to-simple-compound-and-continuous-interest-rates/), as a resource for understanding compound interest. You can also use Google search engine (or others) to find the needed information.
* Complete the KWL Chart (see Annex A) on both simple and compound interest.
* Then you will need to apply what you learned into the following scenario, summarize your findings, and present them to class. To guide your presentation, follow these instructions:

Imagine you are shopping around, among different banks, in order to borrow $4000 to purchase a used car. These are some hints to help you with this investigation:

1. Take a note of the following criteria from each bank. Try to make criteria different from one bank to another:

Bank Name: \_\_\_\_\_\_\_\_\_\_\_\_

Interest Rate:\_\_\_\_\_\_\_\_\_\_\_

Period of Loan:\_\_\_\_\_\_\_\_\_\_

Number of Compounding Periods (per year):\_\_\_\_\_

1. Using an Excel table, build a monthly payment schedule for the full loan period. On this schedule, show the updated balance after each month.
2. What common and uncommon patterns do you observe?
3. Which bank offers a better deal? Justify your answer.
4. Use the following “Compound Interest Calculator” [website](https://www.investor.gov/additional-resources/free-financial-planning-tools/compound-interest-calculator#.VD2Me9TF9sB) to check your answers.
* Summarize your presentation by providing some useful hints to your peers: If you are to advise any loan borrower, what are the terms of the loan, and how would you suggest to negotiate with the bank, in order to get the best deal possible?
* Complete the KWL Chart (see Annex B) on both simple and compound interest.

**Summary Discussion**:

The instructor might choose to build on these presentations by discussing the following higher-level financial questions, with a class as a whole, or assigning one question per each group of students. The recommended [article](https://betterexplained.com/articles/a-visual-guide-to-simple-compound-and-continuous-interest-rates/) can greatly help students answer these questions.

1. Does a bank charge you simple, compound or continuous interest? Justify your answer
2. Which is better, when borrowing money from the bank: APR or APY? Justify your answer
3. Should you pay your monthly student loan at the beginning, or at the end? Justify your answer
4. Should I use several small payments, or a lump sum? Justify your answer
5. What would happen if you decide to pay off your loan before the loan term ends?
6. Do I get a better deal by making a down payment on a loan? Should I hint for lower or higher down payment? Justify your answer.

**Sources and Additional Websites**:

* Glover, Lacie, et al. “Protect Yourself From Auto Loan Bias.” *NerdWallet*, 21 May 2018, [www.nerdwallet.com/blog/loans/auto-loans/congress-cfpb-auto-loan-regulation/](http://www.nerdwallet.com/blog/loans/auto-loans/congress-cfpb-auto-loan-regulation/).
* <https://betterexplained.com/articles/a-visual-guide-to-simple-compound-and-continuous-interest-rates/>
* <https://www.investor.gov/additional-resources/free-financial-planning-tools/compound-interest-calculator#.VD2Me9TF9sB>
* <https://www.facinghistory.org/resource-library/teaching-strategies/k-w-l-charts>

**Annex A**: Pre-Presentation KWL Chart

Group Members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| What do you **K**now about the topic? | What do you **W**ant to know? | What did you **L**earn so far? (before your presentation) |
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**Annex B**: Post-Presentation KWL Chart

Group Members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| What do you **K**now about the topic? | What do you still **W**ant to know? | What did you **L**earn from your presentation project? |
|  |  |  |