**BUDGETING FOR HOME OWNERSHIP**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Instruction Page for Students****. Instructors should modify this page to meet their needs*

**OVERVIEW:** In this project, you will work individually (or in small groups) to achieve the following learning objectives.

Part A: You compare and contrast various types of mortgages and different approaches to mortgage repayment. This analysis aims to identify an optimal strategy for buying a house. You will perform calculations to compare loans and payment methods.

Part B: You are tasked with creating a budget for a fictitious family of four. The budget should include a plan for purchasing a home. Alongside the budget, you must summarize your findings in a written report. This report should outline your strategy for saving money based on the budget and considerations from Part A.

By completing Parts A & B of this project, you will gain a comprehensive understanding of mortgage options, repayment strategies, budgeting, and the financial aspects of buying a home.

*Grading:*

 Part A and Part B are each worth 50 points for a total of 100 points.



*\*\*Special Note:*

When working on these problems, please use a pencil, **show all your work**, and maintain neatness. Illegible or disorganized work will not be graded. Write your final answers directly on this packet and include any additional calculations on separate sheets of paper. **Credit will only be given for answers supported by shown calculations**. To ensure neatness, you may choose to do the work on separate sheets of paper first and then copy it onto this sheet once you have confirmed the accuracy of your answers. Alternatively, you can attach additional work pages if needed.

If your instructor allows, you may use spreadsheet technology, such as Sheets or Excel, for your calculations. In this case, you should include a digital copy or link to your spreadsheet so your instructor can evaluate your work.

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**BUDGETING FOR HOME OWNERSHIP: Part A**

**Understanding Loan Strategies**

Explore various loan types and repayment strategies to identify money-saving opportunities.

### **The Original Loan**

Suppose you are interested in buying a $243,000 house. The first thing you need to do is to carefully choose a loan that requires a down payment and monthly payments that you can afford while at the same time keeping the total amount of interest you have to pay to a minimum. The first loan you consider requires a 10% down payment and charges 6.5% interest over 30 years. We will call this the Original Loan. For this loan, do the following:

1. Calculate the down payment.
2. Calculate the amount left that will be covered by the mortgage loan. (In this example, we will simplify the situation by assuming that all closing costs will be paid by the seller. So the amount of the loan is $243,000 minus the down payment.)
3. Calculate the monthly payment using the necessary payment formula.
4. Calculate the total paid for the house.
5. Calculate the amount of interest paid.

### **Alternate Types of Loans**

To be a good manager of your money, you should not simply accept the first loan you find. You may find an alternate loan that will reduce the total amount of interest paid while at the same time keeping the down payment and monthly payments reasonable. Therefore, you need to compare loans that are essentially the same and differ in only one area: the amount of required down payment, interest rate, or number of years that payments will be made. (Hint: You may find it more convenient to utilize an electronic spreadsheet, like Microsoft Excel or Google Sheets, to perform the calculations in this section.)

Consider the following loans:

| **Loan** | **Type of Loan** | **Down Payment** | **Rate** | **Years** |
| --- | --- | --- | --- | --- |
| **Original** | Original loan requirements | 10% | 6.5% | 30 |
| **Alternate Loan 1** | Large down payment | 20% | 6.5% | 30 |
| **Alternate Loan 2** | Different rates & time | 10% | 6.2% | 20 |
| **Alternate Loan 3** | Fewer payments | 10% | 7.1% | 20 |

1. Calculate the down payment for each alternate loan.

Alternate Loan 1:

Alternate Loan 2:

Alternate Loan 3:

1. Calculate the mortgage for each loan.

Alternate Loan 1:

Alternate Loan 2:

Alternate Loan 3:

1. Calculate the monthly payment for each loan using the necessary payment formula.

Alternate Loan 1:

Alternate Loan 2:

Alternate Loan 3:

1. Calculate the total paid for the house for each loan.

Alternate Loan 1:

Alternate Loan 2:

Alternate Loan 3:

1. Calculate the amount of interest paid for each loan.

Alternate Loan 1:

Alternate Loan 2:

Alternate Loan 3:

1. Use the loan information and your answers from above to fill in the following table.

|  | Original Loan | Alternate Loan 1 | Alternate Loan 2 | Alternate Loan 3 |
| --- | --- | --- | --- | --- |
| Rate |  |  |  |  |
| Years |  |  |  |  |
| Down Payment(as a percentage) |  |  |  |  |
| Down Payment(in dollars) |  |  |  |  |
| Mortgage |  |  |  |  |
| MonthlyPayment |  |  |  |  |
| Total paidfor house |  |  |  |  |
| Total InterestPaid |  |  |  |  |

To prepare for Part B, think about this: The four loans studied above allow you to see what happens when you change the size of the down payment, the rate of interest, or the number of years it takes to pay off the loan. One example does not make a pattern, so you need to do additional problems to help you decide how each factor impacts the monthly payment and total interest paid. Based on what you see happening in your additional examples, think about which combination of these factors will be the best type of loan to take out. In Part B, you willstate your decision and justify it.

**Alternate Payment Plans**

You have had the opportunity to compare different types of loans and decide on which type of loan is the best one to have. Typically, a family would make regular monthly payments to pay off the loan within the specified timeframe. However, there are alternative payment methods that can **help save money on interest**. Here, we present two payment strategies for you to consider. Your task is to apply these strategies to the original loan and assess the amount of money they can save the borrower.



**Payment Strategy 1: Biweekly Payments**

This strategy is based on the fact that many people receive their paychecks every two weeks. If this is true for you, you can pay half of a monthly mortgage payment every two weeks when you get your paycheck instead of paying a total monthly payment once a month. Since there are 52 weeks in a year, this means you end up making ***26 half payments each year***. Since 26 half payments equal 13 total payments, you actually make an extra payment each year. Because of this extra payment, you will pay off the mortgage early.

To see how this will affect the loan, we need an amortization schedule. It has been started below. You are to complete it and show the loan being paid off. The entire chart is too long to list here, so only the beginning and end are shown. After completing the amortization schedule, use it to answer the questions listed after it. You do NOT need to show your calculations for the amortization schedule, but you must show all calculations when you answer the questions that follow it.

**Remember, when calculating interest (I = P×r×t), use time as 2 weeks or t =** $\frac{1}{26}$ **yrs** Complete the last several rows on the amortization schedule shown below to show the loan being paid off. ***Your last entry under “New Balance” should be $0.00.*** You may or may not need all of the blank rows provided to do this. You do not have to show your work in the cells. Utilizing an electronic spreadsheet might be helpful. **Use the information from the original loan on the top of page 2.**

| **Pmt #** | **Payment** | **Interest Paid** | **Principal Paid** |  **New Balance**  |
| --- | --- | --- | --- | --- |
| 1 | $691.17 | $546.75 | $144.42 | $218,555.58 |
| 2 | $691.17 | $546.39 | $144.78 | $218,410.80 |
| 3 | $691.17 | $546.03 | $145.14 | $218,265.66 |
| 4 | $691.17 | $545.66 | $145.51 | $218,120.15 |
| 5 | $691.17 | $545.30 | $145.87 | $217,974.28 |
| 6 | $691.17 | $544.94 | $146.23 | $217,828.05 |
| 7 | $691.17 | $544.57 | $146.60 | $217,681.45 |
| 8 | $691.17 | $544.20 | $146.97 | $217,534.48 |
| 9 | $691.17 | $543.84 | $147.33 | $217,387.15 |
| 10 | $691.17 | $543.47 | $147.70 | $217,239.44 |
| 11 | $691.17 | $543.10 | $148.07 | $217,091.37 |
| 12 | $691.17 | $542.73 | $148.44 | $216,942.93 |
| 612 | $691.17 | $27.15 | $664.02 | $10,194.05 |
| 613 | $691.17 | $25.49 | $665.68 | $9,528.36 |
| 614 | $691.17 | $23.82 | $667.35 | $8,861.01 |
| 615 | $691.17 | $22.15 | $669.02 | $8,192.00 |
| 616 | $691.17 | $20.48 | $670.69 | $7,521.31 |
| 617 | $691.17 | $18.80 | $672.37 | $6,848.94 |
| 618 | $691.17 | $17.12 | $674.05 | $6,174.89 |
| 619 | $691.17 | $15.44 | $675.73 | $5,499.16 |
| 620 | $691.17 | $13.75 | $677.42 | $4,821.74 |
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|  |  |  |  | $0.00 |

\*Use the amortization table from page 7 to answer the following:

1. The size of the last payment is smaller than all of the other payments. It must exactly pay off the last of the principal owed and the interest owed without overpaying any money. What is the size of the last payment?
2. How many payments does it take to pay off the loan?
3. How long does it take to pay off the mortgage? State your answer in years and months.
4. What is the total amount paid for the house? You must add up the down payment (shown on page 2) + all biweekly payments from page 7.
5. What is the total amount of interest paid for the house?
6. Compare the total amount of interest paid for the house under this biweekly payment strategy with the total amount of interest paid when the usual monthly payments were made for the ***original loan*** (see problems #1-5) and determine how much money is saved under this payment strategy.
7. Compare the amount of money paid *during the first year of payments* under this biweekly payment strategy with the amount of money paid *during the first year* when the usual monthly payments were made for the ***original loan* from page 2**. Determine how much extra is paid during that *first year* under this payment strategy.



**Payment Strategy 2:** **Larger Payments for the First Three Years**

Relatively little of the mortgage is paid off in the first few years. In the beginning, when you make a payment, most of it goes to pay interest. A good way to pay off the loan faster and save money is to send in extra money that will be used to reduce the principal. We will send in an extra $200 every month for the first three years and then return to regular payments.

To see how this will affect the loan, we need an amortization schedule. It has been started below. You are to complete it and show the loan being paid off. The entire chart is too long to list here, so only the beginning, the middle, and the end are shown. A careful examination of the chart *shows the first 36 payments (the first 3 years) are larger in size,* and **the rest are regular size**. After completing the amortization schedule, use it to answer the questions listed after it. You do not need to show work in the cells, but you must show all calculations when you answer the questions that follow the table.

NOTE: When calculating interest (I = P×r×t), use time as 1-month (t = $\frac{1}{12}$ yr).

1. Complete the last several rows on the amortization schedule shown below to show the loan being paid off. ***Your last entry under “New Balance” should be $0.00.*** You may or may not need all of the blank rows provided to do this. You do not have to show your work. **Use the information from the original loan on the top of page 2.**

| **Pmt #** | **Payment** | **Interest Paid** | **Principal Paid** | **New Balance on Loan** |
| --- | --- | --- | --- | --- |
| 1 | $1,582.33 | $1,184.63 | $397.71 | $218,302.30 |
| 2 | $1,582.33 | $1,182.47 | $399.86 | $217,902.44 |
| 3 | $1,582.33 | $1,180.30 | $402.03 | $217,500.41 |
| 4 | $1,582.33 | $1,178.13 | $404.20 | $217,096.21 |
| 5 | $1,582.33 | $1,175.94 | $406.39 | $216,689.82 |
| 6 | $1,582.33 | $1,173.74 | $408.59 | $216,281.22 |
| 34 | $1,582.33 | $1,107.01 | $475.32 | $203,896.65 |
| 35 | $1,582.33 | $1,104.44 | $477.89 | $203,418.76 |
| 36 | $1,582.33 | $1,101.85 | $480.48 | $202,938.28 |
| 37 | $1,382.33 | $1,099.25 | $283.08 | $202,655.20 |
| 38 | $1,382.33 | $1,097.72 | $284.61 | $202,370.59 |
| 39 | $1,382.33 | $1,096.17 | $286.16 | $202,084.43 |
| 320 | $1,382.33 | $76.61 | $1,305.72 | $12,836.92 |
| 321 | $1,382.33 | $69.53 | $1,312.80 | $11,524.13 |
| 322 | $1,382.33 | $62.42 | $1,319.91 | $10,204.22 |
| 323 | $1,382.33 | $55.27 | $1,327.06 | $8,877.16 |
| 324 | $1,382.33 | $48.08 | $1,334.25 | $7,542.92 |
| 325 | $1,382.33 | $40.86 | $1,341.47 | $6,201.44 |
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Use the amortization table above to answer the following:

1. The size of the last payment is smaller than all of the other payments**. It must exactly pay off the last of the principal owed and the interest owed without overpaying any money**. What is the size of the last payment?
2. How many payments does it take to pay off the loan?
3. How long does it take to pay off the mortgage? State your answer in years and months.
4. What is the total amount paid for the house? You will need the down payment (from page 2) + all monthly payments from the amortization table above.
5. What is the total amount of interest paid for the house?
6. Compare the total amount of interest paid for the house under this payment strategy with the total amount of interest paid when the usual monthly payments were made for the ***original loan*** (see problems 1-5) and determine how much money is saved under this payment strategy.
7. Compare the amount of money paid during the *first year of payments* under this payment strategy with the amount of money paid *during the first year* when the usual monthly payments were made for the ***original loan***. Determine how much extra is paid during that *first year* under this payment strategy.

**Name(s):**



**BUDGETING FOR HOME OWNERSHIP: Part B**

**Creating a Living Expenses Budget**

Create a budget for a family of four, assist them in selecting an optimal mortgage, and devise a sound strategy for loan repayment.

### **The Budget**

The Corleone family has approached you for financial advice regarding the purchase of a new home. You will be tasked with developing a budget for them, taking into account their specific circumstances. One of the parents is employed (you can decide if both or just one), and they have two children, aged 5 and 2, which may necessitate childcare services. Additionally, they have outstanding college and car loans, although they have paid off their second car. They have recently eliminated all their credit card debt and managed to save $25,000 towards their house purchase.

Currently residing in an apartment, they will need to purchase various appliances (refrigerator, stove, washer, dryer, lawn mower) when transitioning to a house. There will also be additional expenses associated with the move itself, including installation fees for utilities such as internet, electric, gas, cable, and others. Therefore, it is imperative that they do not deplete their savings entirely on the down payment.

Your task involves creating a monthly budget for the Corleone family, detailing the expected expenses they will incur once they settle into their new home. To accomplish this, you must research key information for the budget, including the professions of Mr. & Mrs. Corleone, which should be similar to your future profession. Assume they are 6-8 years into their careers, with realistic salaries based on your research in a specific state. Calculate their monthly income after taxes, considering federal and state tax deductions, ensuring that all figures are within the realm of plausibility.

#### Calculate the Corleone family's monthly post-tax income by determining their parents' professions and their state of residence. Research comparable salaries and federal/state tax liabilities. All of these figures must be realistic, or you will receive a zero for this part of the project.

#### You may look up **salaries** on the web on the following site:

#### <https://www.glassdoor.com/Salaries/index.htm>

#### You may also use other reliable sources for your salary information

#### You can find **tax information** on the web on the following pages.

* Federal Taxes: <https://www.irs.gov/>
* <https://www.hrblock.com/tax-center/irs/tax-brackets-and-rates/what-are-the-tax-brackets/>
* State Taxes: <https://taxadmin.memberclicks.net/tax-rates>

For the state income tax, choose the state where they will live, find the department of taxation or the tax commission for that state, and then find the income tax link.

Fill in the chart on the following page. Be certain to **show all calculations** inside the table cells to receive credit.

**The Corleone Family’s Monthly Income**

|  | Mr. Corleone | Mrs. Corleone |
| --- | --- | --- |
| Location: | ***State they live in: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***  |
| Job description |  |  |
| Annual income |  |  |
| Annual federal taxes in dollars |   |  |
| Annual state taxes in dollars |  |  |
| Annual income after taxes |  |  |
| Monthly income after taxes |  |  |
| Total monthly income after taxes for the family |  |

* Where did you get your salary information?
* Where did you get your federal tax information?
* Where did you get your state tax information?
1. Now, list all of the family’s monthly expenses. Several blank lines are provided. **You must add in other budget categories, such as tithe, cellular phones, travel, savings, private schools for the children, etc.** Again, these should be realistic numbers. For example, a family of four cannot live on a food budget of $50 per month. Also, do not skip categories by creating unusual situations such as, “Mrs. Corleone’s sister moves in with them and agrees to babysit for free as well as pay for room and board.” Look at what this family has and make it work.

Notice that the monthly expenses do not include the mortgage payment. You need to adjust their budget so that the monthly income is large enough to pay all of the expenses and have money left to pay a monthly mortgage payment. The goal is to determine how much they can afford for their house payment.

#### **The Corleone Family’s Monthly Expenses**

| Childcare |  |
| --- | --- |
| Car payment |  |
| Mr. Corleone’s student loan payment |  |
| Mrs. Corleone’s student loan payment |  |
| Electricity |  |
| Natural gas |  |
| Communications (phone & WiFi) |  |
| Water/Sewer/Trash |  |
| Cable |  |
| Food |  |
| Clothing |  |
| Gasoline |  |
| Car insurance |  |
| Life insurance |  |
| Health/dental insurance |  |
| Entertainment |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Total Monthly Expenses: |  |

1. According to their monthly income and expenses, how large of a monthly mortgage payment can the Corleone’s afford to make?
2. How much of the money that they have saved (Savings: $20,000) should the Corleone’s pay toward a down payment? Justify your answer by describing what you think would be the best use of the money.
3. How expensive of a house should the Corleones buy? This is just an approximation. Justify your answer by describing a price range that seems reasonable for the area of the state where they live. Include a screenshot of a real estate listing from that area to support your choice.
4. Research **three** different mortgage loans that are available and record your findings here. You may visit or call banks, or get online information. Some sites you may find helpful information on are the following. **You should investigate at least 2 different lenders and three different options.**
* <http://www.bankrate.com/brm/default.asp>
* [www.eloan.com/cgi-bin/eloan](http://www.eloan.com/cgi-bin/eloan)

If you cannot find a required down payment for a loan then use 5% for conventional loans and 3.5% for FHA loans.

Fill out the following chart on the next page with the information you have found.

| Bank name &Place you found this information | Interest Rate | Down PaymentRequirement | Length of Loan(in Years) |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Which loan do you recommend that the Corleones take out? **Justify your answer** based on what you learned in Part A and what fits the family’s situation.
2. Based on the loan you selected, calculate the size of the Corleone’s monthly payment. Be certain it is equal to or smaller than the amount they can afford according to their budget.

**(Show monthly payment calculations here)**

1. What is the total amount of interest they will pay over the life of the loan?

(**Show interest calculations here)**

1. What payment strategy do you recommend that the Corleone’s use to reduce the total amount of interest they will pay while keeping monthly expenses within the budget? **Defend your advice.**