College Of Engineering

EMGT 6225 - Economic Decision Making

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Project Report

Under The Guidance Of

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Submitted By

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1. PROBLEM STATEMENT

Develop a 36-year financial plan for Yash, a 24-year-old engineer starting his career, aiming for retirement at 60. This plan should consider housing choices, transportation strategies, managing and repaying education loans, if any, and creating a diverse investment portfolio including retirement savings and stocks/bonds. It should also provide guidance to prevent financial issues and address them if they occur.

2. SCOPE OF THE FINANCIAL PLANNING REPORT

This report provides an in-depth analysis of Yash's financial options and strategies. It explores:

- The housing market, including pros and cons of renting vs. buying, and financial considerations of home ownership.
- Transportation choices in his early career, transitioning from public to private transport, including financial details.
- A thorough overview of his education loan obligations and repayment options.
- Investment strategy, detailing his retirement planning, stock market investments, and savings management, along with expected returns and the growth of his savings.
- Alternatives based on key factors (transportation, housing and investment strategy) influencing his lifestyle preferences, and long-term financial objectives.
- The analysis of alternatives based on Present Worth (PW) and Future Worth (FW) at different MARR brackets to inform decision making.

3. RESEARCH

a. SALARY

Salaries for individuals with a master's degree in engineering management in Massachusetts can range from $63,293 for entry-level roles up to $222,064 for

experienced positions. With, average salary at $112,105 annually, or $9,396 monthly. ("Master's in engineering management salary in MA," 2024)

b. LIVING EXPENSES

- Food & Grocery

  As per 2021 data from the Bureau of Labor Statistics, US households spend an average of on $5,259 annually, or about $438 per month for food expenses. ("Cost of living in Massachusetts," 2024) ("Massachusetts grocery spending - 4th in nation," 2022)

- Utility

  Utility costs play a significant role in overall cost of living. As per Forbes, the average monthly cost for a single family in MA is around $440. ("Cost of Living in Massachusetts," 2024)

c. INVESTMENTS

- Retirement Savings

  Fidelity recommends that we should aim to save at least 15% of our gross income annually into retirement accounts, such as 401(k)s and IRAs. ("How much to save for retirement," 2023) This recommendation is rooted in the idea that consistent and regular investing over many years is key to building wealth for retirement.

  Alongside, Fidelity also underlines that beginning to save earlier in our career is advantageous as it requires a lower percentage of our income each year to reach the same retirement savings goals. ("How much to save for retirement," 2023)

  The overview of some of the more common retirement account types is as shown in Table 4, Appendix B. ("Fidelity - Types of retirement accounts," 2023)

  We should aim for a diverse mix in our retirement savings strategy. 401(k) plans are excellent choices, particularly when our employers contribute to our savings, boosting our investment.

As we anticipate higher earnings in the future, we should also consider Roth accounts, which offer the advantage of tax-free withdrawals in retirement. For immediate tax benefits, especially if our current incomes are high, Traditional IRAs can be a better fit for us. Strategically combining different types of retirement accounts is a key step in securing our financial future. ("Roth 401(k) vs. Roth IRA," 2023) ("Traditional IRA") ("How does Roth IRA work", 2024) ("Traditional or Roth IRA or both?," 2024)

- Stocks, Bonds, Mutual Funds: Key to a diversified portfolio

  Stocks, Bonds and Mutual Funds are essential for a diversified investment strategy, each offering different levels of risk and potential returns. Stocks provide ownership in companies with the potential for higher returns but also higher risk. Bonds are generally less risky, offering fixed income, while mutual funds allow investors to pool their money in a diversified portfolio managed by professionals, providing balance and diversity. ("Investing 101," 2023)

d. LOANS

- Graduate student loan

  The average federal interest rate in the United States for graduate student loans is 6.6%. Payments could range from $500 to over $1000 depending on the debt amount and duration of the loan. ("Student loan interest rates," 2024)

  * Federal Student Loan Key Facts:
    - Graduate unsubsidized loans: 7.05% (2022-23 & 2023-24)
    - Graduate Direct PLUS loans: 8.05% (2022-23 & 2023-24)
    - Congress sets fixed interest rates for student loans
    - Fixed rates ensures rate will not fluctuate for the life of the loan
    - About 92% of student loan debt is federal

  * Private Student Loan Key Facts:
    - Range from 4.5% to 16.99% based on credit score
    - Interest rates vary from lender to lender

- Offers both fixed and variable rates
- Variable rates fluctuates over time as per market conditions

It's important to remember that for federal unsubsidized loans, interest begins to accumulate as soon as the loan is disbursed. If we decide to delay loan payments until after graduation or the six-month grace period, the interest that has accumulated will be added to the principal amount when we start repaying the loan. ("Student loan interest rates," 2024)

- Auto loan

  Interest rates for auto loans vary based on factors like credit score. Depending upon credit score, the interest rates for new cars generally range from about 5.64% to 14.78%. High credit scores (781-850) generally lead to lower auto loan rates, about 5.64%. On the other hand, lower scores (300-500) can result in much higher rates, up to 14.78%. Used car loans typically have higher rates, ranging from 7.66% for high credit scores to 21.55% for lower scores.

  The average interest rates observed in the fourth quarter of 2023 were 7.18% for new cars and 11.93% for used cars. ("Average car loan rates by credit score," 2024) ("Car loan statistics 2024," 2024) ("Average car loan interest rates by credit score – March 2024," 2024)

- Home loan

  In 2024, the interest rates for home loans, specifically 30-year fixed mortgage rates, have been fluctuating. In March 2024, the average rate was 6.79%, but these rates have seen a downward trend from late 2023, when they peaked at 7.79%. Looking ahead, it's predicted that by the summer'24, rates might fall to around 4.25%. ("2024 Mortgage Rates: A 4.25% Forecast," 2024) ("30-Year Fixed Rate Mortgage Average in the United States," 2024) ("Mortgage statistics 2024," 2023)

Mortgage rates are impacted by various factors like inflation, global events, economic conditions, Federal Reserve policies, bond prices, and individual borrower's financial situations. Personal aspects like credit score, down payment size, loan-to-value ratio, and property type also influence the rate offered by lenders. ("Factors affecting mortgage rates," 2023)

e. TRANSPORTATION

- Public Transit: Practical & budget-friendly choice

  The average monthly public transportation pass in U.S. is $158.71. In MA, the monthly LinkPass (unlimited travel for the month via subway/local bus/ferry/silver line/zone 1A commuter rail) costs $90. Commuter Rail and ferry passes range between $80 - $426 per month. ("Fares overview, MBTA," 2024)

  A study comparing public transit fares in 20 cities with the costs of owning and operating a car found that using public transit can save people between $12,000 and nearly $17,000 annually. The national average cost of car ownership is about $1,102 per month or $13,218 per year. In Boston, MA, the potential savings from using public transport are $1,310 per month, or $15,714 per year. ("Public transport could save Americans $13k per year," 2023) ("Transit Savings Report," 2023)

- Used Car:

  While there are various factors which influence the value of a used car like mileage, age, condition, location ("Impact of location on car's value," 2023), color and add-ons, there are four aspects of vehicle history that can significantly impact car's value. This includes accidents/damages, maintenance history, number of previous owners and open safety recalls. ("Factors & value of used car," 2021) ("4 factors that impact a car's value," 2022)

  Typical used car pricing ranges based on mileage is as follows: ("Car Gurus - pricing by make/model/style")

  - Over 100,000 miles: $6,000 - $12,000 -> Lower resale price due to high mileage
  - Under 30,000 miles: $19,000 - $35,000 -> Higher resale price due to lower mileage

For instance, Figure 1 in Appendix B compares two 2018 Honda Civics with 60k miles, showing how vehicle history affects their value. There's a $2,405 value difference between two 2018 Honda Civics, based on their history, with the better-maintained, single-owner car valued higher. ("4 factors that impact a car's value," 2022)

- New Car:

  Honda Civic LX Sedan - The starting base price for the 2024 Honda Civic LX Sedan is around $23,950. Considering about 10% to 15% to the base price of about $23,950, this could mean an extra $2,395 to $3,592.50, bringing the total cost to roughly $26,345 to $27,542.50. ("Car Gurus - pricing by make/model/style") ("Market price – Honda Civic 2024")

  Tesla Model Y - The starting base price for the 2024 Tesla Model Y Rear-Wheel Drive is around $43,990. Considering about 10% to 15% to the base price of $43,990, additional costs could range from $4,399 to $6,598.50. This would bring the total estimated cost to around $48,389 to $50,588.50. ("Car Gurus - pricing by make/model/style") ("2024 Tesla Model Y")

  Tesla Cybertruck RWD - The starting base price for the 2024 Tesla Cybertruck Rear-Wheel Drive model is approximately $60,990. Considering about 10% to 15% to the base price of $60,990, the additional costs might range from $6,099 to $9,148.50. This would bring the total estimated cost could be between $67,089 and $70,138.50. ("Car Gurus - pricing by make/model/style") ("2024 Tesla Cybertruck")

f. HOUSING

- Renting vs Buying a home

  Choosing whether to rent or buy a home requires considering the advantages and disadvantages of both options. It is recommended to rent if we value flexibility, have a limited income, or want to avoid maintenance costs; buy if we plan to stay in one place for over five years, can afford a 20% down payment, and when the monthly costs are less than or comparable to rent, thus offering the benefit of building equity over time. ("Renting vs Buying")

- Factors influencing the value of property and rent

  The value of a property (& its rent) depends on factors like location ("How location affects home value," 2023), proximity to amenities ("How proximity can affect home value," 2022), accessibility to public transport, quality of local schools (private & public) ("The Impact of Neighborhood Amenities on Property Value," 2024) ("Impact of good schools on nearby property values", 2020), safety, environmental risks, economic growth ("Impacts of rent control on housing markets," 2018), property condition & size ("10 factors that impact home value," 2021) ("Factors affecting property value," 2023), neighborhood quality ("Impact of neighborhood," 2019) and market trends like supply-demand balance, interest rates & economic conditions. ("How housing market affects economy," 2022) ("Average house price in USA," 2023) ("Amenities & property value," 2021)

- Housing price overview
  - Renting an apartment:

    Nationwide average rent for an average apartment size of 897 sq ft. costs $1,718 per month according to November 2023 data. However, average monthly rent for an average apartment size in MA is $2,714 or more. It should be noted that while the nationwide average provides a baseline, the rent may be higher or lower depending on the real estate market and dynamics. ("Average rent by state," 2023) ("Average rent in the US") ("Benefits of buying a house vs renting")

  - Buying a house:

    As per September 2023' Redfin's monthly housing data– the state with least expensive housing market had a median price of $229,000, the priciest was about 3.5 times as much at $787,000, and median home price was $412,000. ("Average house price by state," 2024) ("Median home price by state," 2023) ("Median home price by state 2024") In Massachusetts the median home price is significantly higher at $614,700. This higher median price in MA can be attributed to its desirable amenities and high rankings in education and healthcare. ("2020 MA town median values & map") ("Complete state wise list - average house price in the USA") ("Benefits of buying a house vs renting") ("Greater Boston's Single-Family Home Prices By Town for 2022")

4. ASSUMPTIONS

a. Age

- Current Age = 24
- Retirement Age = 60
- Planning Horizon = 26 years, n = 36x12 = 432 months

b. Salary

- He will start his job exactly when he is 24 years and 0 months old
- He will receive a signing bonus of $10,000 and will receive his first salary when he is 24 years and 0.5 months old
- His starting salary is $8,000 in the first month and increases by 5% every 12 months

c. Retirement Fund:

- 6% of his salary goes to the retirement fund every month,
  i.e. 6% * 8,000 = $480/month for the first year.

d. Tax on Salary:

- Yash is based in Massachusetts. MA has state tax of 5% and Federal tax 15%, Thus, he pays a total of 20% income tax throughout his employment period.

e. Education Loan:

Yash took an education loan for MS in Engineering Management

- He took a loan with a sanction amount of $70,000 for graduate studies when he was 22 years and 0 months old (2 years ago = 24 months ago)
- Before starting his studies, he disbursed $35,000 from his sanctioned loan for paying the fees for the first year. (when he was 22 years and 0 months old)
- After the 1st year, he disbursed the remaining $35,000 to pay for his fees for the final year. (when he was 23 years and 0 months old)

- He will start paying the loan starting from when he is 24 years and 1 month old (i.e. when he receives his first salary) for the next 10 years (120 months) at an interest rate of 2% per year compounded monthly
- Monthly payment for Graduate loan:
- = [$35K (F|P 2%/12, 24) + $35K (F|P 2%/12, 12)] (A|P 2%/12,120) = $752.62

f. Transportation

For the first 6 years (72 months) Yash uses MBTA public transit who's monthly LinkPass costs $90 per month (assuming it is paid at the end of every month). ("Fares overview, MBTA," 2024)

I. Later he saves enough to buy his **first** car, Honda Civic LX Sedan (Buys when he is 30 years & 0 months old)

- Total Cost = $23,950
- Down payment: $6,000
- Loan amount = $23,950 - $6,000 = $17,950
- Loan period = 5 years (60 months)
- Interest rate = 6%/year/monthly
- Monthly payment = $17,950 (A|P 6%/12, 60) = $347.02
- Monthly Operations and Maintenance (O&M cost) = $150 and increases by $3 every month
- He will use this First car for 10 years (120 months) and sell it for $7,000

II. He then saves to buy a **second** car, Tesla Model Y Rear-Wheel Drive (Buys when he i40 years & 0 months old)

- Total Cost = $40,310
- Down payment: $10,000
- Loan amount = $40,310 - $10,000 = $30,310
- Loan period = 5 years (60 months)

- Interest rate = 5%/year/monthly
- Monthly payment = $30,310 (A|P 5%/12, 60) = $571.99
- Monthly Operations and Maintenance (O&M cost) = $100 and increases by $2 every month
- He will use this second car for 10 years (120 months) and sell it for $12,000

III. He then saves to buy a **third** car, Tesla Cybertruck Rear-Wheel Drive (Buys when he is 50 years & 0 months old)

- Total Cost = $57,390
- Down payment: $14,000
- Loan amount = $57,390 - $14,000 = $43,390
- Loan period = 5 years (60 months)
- Interest rate = 5%/year/monthly
- Monthly payment = $43,390 (A|P 5%/12, 60) = $818.82
- Monthly Operations and Maintenance (O&M cost) = $100 and increases by $2 every month
- He will use this third car for 10 years (120 months) and sell it for $18,000

g. Living Expenses

I. Lives in a rental apartment for the first 16 years (192 months),

- Rent = $1,500 per month and increases by 6% per 12 months (paid at the beginning of each month)

II. Buys a house when he is 40 years and 0 months old,

- Cost of house = $500,000
- Down payment = $100,000
- Loan amount =$500,000 - $100,000 = $400,000
- Loan period = 15 years (180 months)
- Loan interest = 5%/year/monthly
- Mortgage = 400000 (A|P 5%/12, 180) = $3,163.17
- Lives in the house from then and sells it at an estimated price of $902,000

III. Food + Other Expenses:

- Monthly = $500 and increases by $10 every month

h. Investment in Mutual Funds

- He puts aside 5% of his monthly salary into Mutual Funds
- The anticipated return from Mutual Funds (assuming all are sold at the end of the planning period) is 8% annually, compounded monthly

i. Total Savings

- Total Savings = Salary - All Spendings
- The Savings are placed in a High Yield Savings bank account who's interest rate changes as per the MARR
- MARR considerations = 1%, 5%, 7%, 15%, 20%, 30%, 35%, 40%

5. CASES

For Yash's 36-year financial plan, we have considered alternatives in three main areas: transportation, housing, and investment. Given these, there will be a total of 12 unique cases.

Various options available to Yash along with the reasons for considering each, are summarized below. This analysis aims to provide a clear understanding of how each choice aligns with his career progression, lifestyle preferences, and long-term financial objectives.

Transportation Options:

- Public Transport for 72 months:

  This is a cost-effective and practical option for Yash’s early career years in Boston. Public transport saves considerable money compared to owning a car, with potential savings of $1,310 per month, or $15,714 per year, making it an ideal choice for urban early career living.

- Honda Civic LX Sedan at age 30:

  Transitioning to private transportation, Yash opts for a Honda Civic LX Sedan. Considering its affordability, reliability, and reasonable operating and maintenance costs, this vehicle is an excellent choice for Yash as a mid-career professional. It represents a practical upgrade from public transport, fits comfortably into his budget and offers the conveniences of personal transportation.

- Tesla Model Y at age 40:

  At this juncture, Yash upgrades from Honda Civic LX Sedan to Tesla Model Y. This choice is in line with Yash's increased earning potential, a preference for high performance, the prestige of owning a renowned brand, and the potential for fuel cost savings associated with an electric vehicle.

- Tesla Cybertruck at age 50:

  This is a luxury vehicle choice, representing a further upgrade in Yash’s lifestyle as he approaches retirement. It reflects higher income and personal preferences.

Housing Options:

- Rental (for 16 years/forever):
  - For first 16 years: Renting in the early career stages offers flexibility and less financial burden compared to buying. It's a practical choice for a young professional.
  - Forever: Renting forever not only ensures flexibility to move but also eliminates the need to commit to a long-term mortgage, which typically spans 30 years and other associated costs.

- Purchases a house at age 40:

  Buying a home at this stage is considered for its long-term investment potential and stability. This choice comes at a time when he is more financially secure, having saved enough for a substantial 20% down payment.

Investment Options:

- Invests 5% of monthly salary in stocks
- Does not invest in stocks

Table 1 in Appendix A details Yash's decisions across different stages of his life, factoring in transportation, housing, and investments in stocks.

6. DECISION MAKING

We first developed a 'Data Sheet' (Table 2, Appendix A) to guide the detailed analysis of 12 cases (as detailed in Excel file) and determine their Future Worth (FW). This 'Data Sheet' includes all elements of financial planning such as age, salary, loans, transportation, housing, daily living expenses, and investments.

Next, we employed 'Data Tables' for each case (using What-If Analysis in Excel) to determine Future Worth (FW) at MARR values spanning 1%, 5%, 7%, 15%, 20%, 30%, 35%, and 40%.

Furthermore, data from 'Data Tables' were consolidated in a 'Decision Table' (Table 3, Appendix A) which enabled us to thoroughly assess the economic viability of each scenario, providing clear insights into which cases are most financially advantageous under varying rates of return.

7. FINAL RECOMMENDATION

Based on this comprehensive analysis, it can be observed from 'Decision Table' that for MARR in the range:

- [1%, 7%]: Case 5 offers the highest FW
- [15%, 20%]: Case 7 presents the highest FW
- [30%, 40%]: Case 12 presents the highest FW

Appropriate case can be selected based on the specified MARR value.

APPENDIX A

Case #	Transportation	Housing Option(s)	Stock Investment
1	Public Transport + Honda Civic LX Sedan + Tesla Model Y RWD + Tesla Cybertruck RWD	Rent + House	Yes
2	Public Transport + Honda Civic LX Sedan + Tesla Model Y RWD + Tesla Cybertruck RWD	Rent Only	Yes
3	Public Transport + Honda Civic LX Sedan + Tesla Model Y RWD + Tesla Cybertruck RWD	Rent + House	No
4	Public Transport + Honda Civic LX Sedan + Tesla Model Y RWD + Tesla Cybertruck RWD	Rent Only	No
5	Public Transport + Honda Civic LX Sedan + Tesla Model Y RWD	Rent + House	Yes
6	Public Transport + Honda Civic LX Sedan + Tesla Model Y RWD	Rent Only	Yes
7	Public Transport + Honda Civic LX Sedan + Tesla Model Y RWD	Rent + House	No
8	Public Transport + Honda Civic LX Sedan + Tesla Model Y RWD	Rent Only	No
9	Public Transport + Honda Civic LX Sedan	Rent + House	Yes
10	Public Transport + Honda Civic LX Sedan	Rent Only	Yes
11	Public Transport + Honda Civic LX Sedan	Rent + House	No
12	Public Transport + Honda Civic LX Sedan	Rent Only	No

Table 1: Car ownership (sequential upgrade) with housing and investment choices

Datasheet			
Database / Single Source of Truth			
Sr. No.	**Data**		**Value**
1	Age	Starting Age	24
		Retirement Age	60
2	Salary	Signing Bonus	$10,000.00
		First Salary	$8,000.00
		Increment / 12 months	5.00%
3	Retirement	Retirement Share % from Salary	6.00%
4	Graduate Loan	Loan Amount	$70,000.00
		Loan Interest Rate (per year compounded monthly)	2.00%
		Loan Repayment Horizon	120 months
6	Public Transport (for first 6 years)	Fare Amount / month	$90.00
7	First Car	Total Cost	$23,950.00
		Downpayment	$6,000.00
		Loan Amount	$17,950.00
		Loan Interest Rate (per year compounded monthly)	6.00%
		Loan Repayment Horizon	60 months
		O&M Cost	$150.00
		O&M Cost Increment / month	$3.00
		Selling Price (after 10 years)	$7,000.00
8	Second Car	Total Cost	$40,310.00
		Downpayment	$10,000.00
		Loan Amount	$30,310.00
		Loan Interest Rate (per year compounded monthly)	5.00%
		Loan Repayment Horizon	60 months
		O&M Cost	$100.00
		O&M Cost Increment / month	$2.00
		Selling Price (after 10 years)	$12,000.00
8	Third Car	Total Cost	$57,390.00
		Downpayment	$14,000.00
		Loan Amount	$43,390.00
		Loan Interest Rate (per year compounded monthly)	5.00%
		Loan Repayment Horizon	60 months
		O&M Cost	$100.00
		O&M Cost Increment / month	$2.00
		Selling Price (after 10 years)	$18,000.00
9	Rent	Rent Amount	$1,500.00
		Increment / 12 months	$90.00
		Rental Period	192 Months
10	First House	Total Cost	$500,000.00
		Downpayment	$100,000.00
		Loan Amount	$400,000.00
		Loan Interest Rate	5.00%
		Loan Repayment Horizon	180 months
		Selling Price	$515,000.00
11	Expenses	Food + Other Expenses	$500.00
		Increment / month	$10.00
12	Stocks Investment	Investment Amount / month	$400.00
		Return on Investment %	8.00%

Table 2: Data Sheet

Case Number	Case Description	1%	5%	7%	15%	20%	30%	35%	40%
1	(Public Transport + Honda Civic LX Sedan + Tesla Model Y Rear-Wheel Drive + Tesla Cybertruck Rear-Wheel Drive) + (Rent + House) + (Stock Investment)	$7,479,995.80	$9,672,754.71	$11,833,992.15	$52,263,429.46	$205,777,324.67	$4,567,868,006.74	$22,878,240,546.32	$116,407,281,327.29
2	(Public Transport + Honda Civic LX Sedan + Tesla Model Y Rear-Wheel Drive + Tesla Cybertruck Rear-Wheel Drive) + (Rent Only) + (Stock Investment)	$5,517,964.48	$7,498,309.36	$9,543,270.93	$49,659,166.76	$203,796,971.72	$4,581,027,966.99	$22,927,907,280.56	$116,563,062,051.15
3	(Public Transport + Honda Civic LX Sedan + Tesla Model Y Rear-Wheel Drive + Tesla Cybertruck Rear-Wheel Drive) + (Rent + House)	$6,212,303.84	$8,875,320.85	$11,499,713.38	$60,181,129.83	$243,186,031.65	$5,372,124,394.80	$26,755,416,160.61	$135,464,392,862.09
4	(Public Transport + Honda Civic LX Sedan + Tesla Model Y Rear-Wheel Drive + Tesla Cybertruck Rear-Wheel Drive) + (Rent Only)	$4,250,272.52	$6,700,875.50	$9,208,992.16	$57,576,867.13	$241,205,678.70	$5,385,284,355.05	$26,805,082,894.85	$135,620,173,585.94
5	(Public Transport + Honda Civic LX Sedan + Tesla Model Y Rear-Wheel Drive) + (Rent + House) + (Stock Investment)	**$7,486,494.12**	**$9,691,688.04**	**$11,860,895.74**	$52,339,584.18	$205,905,775.11	$4,568,195,871.61	$22,878,750,657.34	$116,408,068,071.87
6	(Public Transport + Honda Civic LX Sedan + Tesla Model Y Rear-Wheel Drive) + (Rent Only) + (Stock Investment)	$5,524,462.80	$7,517,242.68	$9,570,174.52	$49,735,321.48	$203,925,422.16	$4,581,355,831.87	$22,928,417,391.57	$116,563,848,795.73
7	(Public Transport + Honda Civic LX Sedan + Tesla Model Y Rear-Wheel Drive) + (Rent + House)	$6,218,802.16	$8,894,254.17	$11,526,616.97	**$60,257,284.55**	**$243,314,482.09**	$5,372,452,259.67	$26,755,926,271.63	$135,465,179,606.67
8	(Public Transport + Honda Civic LX Sedan + Tesla Model Y Rear-Wheel Drive) + (Rent Only)	$4,256,770.84	$6,719,808.82	$9,235,895.75	$57,653,021.85	$241,334,129.14	$5,385,612,219.93	$26,805,593,005.86	$135,620,960,330.53
9	(Public Transport + Honda Civic LX Sedan + (Rent + House) + (Stock Investment)	$7,390,852.13	$9,571,098.89	$11,725,890.51	$52,148,311.98	$205,730,852.54	$4,569,037,534.58	$22,882,124,618.70	$116,418,693,639.22
10	(Public Transport + Honda Civic LX Sedan + (Rent Only) + (Stock Investment)	$5,428,820.80	$7,396,653.54	$9,435,169.29	$49,544,049.28	$203,750,499.59	$4,582,197,494.83	$22,931,791,352.93	$116,574,474,363.08
11	(Public Transport + Honda Civic LX Sedan + (Rent + House)	$6,123,160.16	$8,773,665.03	$11,391,611.75	$60,066,012.35	$243,139,559.53	$5,373,293,922.64	$26,759,300,232.99	$135,475,805,174.01
12	(Public Transport + Honda Civic LX Sedan + (Rent Only)	$4,161,128.84	$6,599,219.68	$9,100,890.53	$57,461,749.65	$241,159,206.58	**$5,386,453,862.89**	**$26,808,966,967.22**	**$135,631,585,897.87**

Table 3: Decision Table

APPENDIX B

Retirement Plan	Pre-tax Contributions	Tax-free Withdrawals	Mandatory Withdrawals at 72	Income Limits for Contributions	Employer Match	Contribution Limits (2024)
401(k)	✓	✗	✓	✗	✓	$19,500
Roth 401(k)	✗	✓	✓	✗	✓	$19,500
Roth IRA	✗	✓	✗	✓	✗	$6,000
Traditional IRA	✓	✗	✓	✓	✗	$6,000

Table 4: Common retirement plans

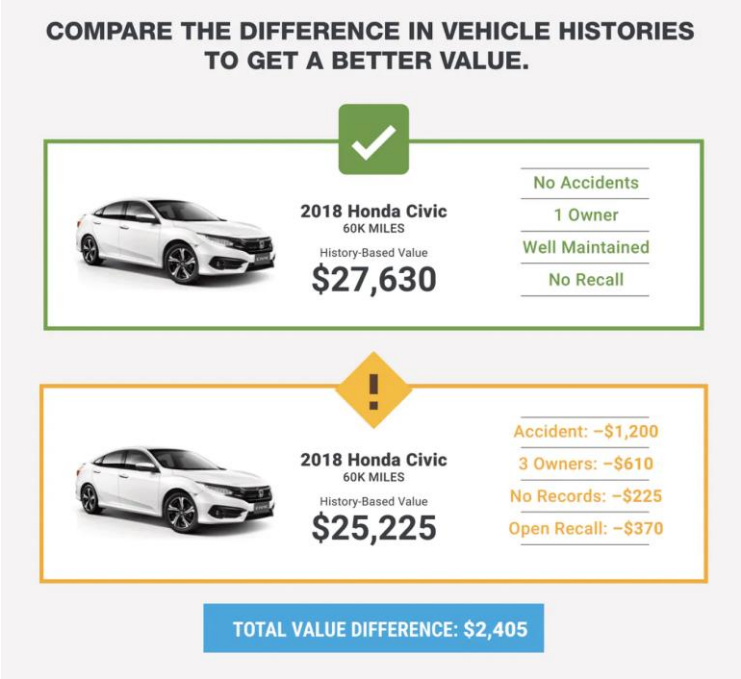

Figure 1: Value vs Car histories

APPENDIX C

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