CS 4804: Data Visualization – College Payoff Comparator

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1.0 Overview and Motivation

This project consists of an analysis tool built for students analyzing return on investment (ROI) for higher education. The tool provides a clear visualization of the initial cost of college and estimates how long that investment takes to pay off based on expected earnings and expenses (such as loans). Potential students use our visualization to compare different degrees, institutions, and career paths to make informed financial decisions about their education.

With the cost of higher education rising for the past twenty years, it's ever more crucial for students to grasp the financial implications of their academic decisions. Many end up burdened with significant loans, often lacking a solid sense of what lies ahead after they finish school.[1] [2]Existing tools primarily focus on loan payments and general salary but lack a personalized, interactive, and unified approach to ROI analysis.

This tool fills that gap by providing a unified, interactive and customizable visualization of students' financial future. It analyzes income trajectories based on different degrees and industries. Users can select an education (HS diploma, associate's, bachelor's, master's, Ph.D.) and see projected earnings over time. It includes a "Break-Even Calculator" to show how long it takes to recoup student loan costs based on major and job type.

[1] Wood, S. (2024, September 24). A Look at College Tuition Growth Over 20 Years. *U.S. News & World Report*. https://www.usnews.com/education/best-colleges/paying-for-college/articles/see-20-years-of-tuition-growth-at-national-universities

[2] *The Fed - Consumer Credit - G.19*. (2019). Federalreserve.gov. https://www.federalreserve.gov/releases/g19/current/default.htm

2.0 Related Work

Our project was inspired by *Is It Better to Rent or Buy? A Financial Calculator* written by The New York Times. The overall theme of this article was for readers to understand the different variables when considering renting or buying a home. To resolve this issue, The New York Times created a financial calculator to tell which option would be a better deal. The article discusses how buying a house is much more complicated than renting.[3] The same goes for whether a student should pursue further education. To help students and parents answer the question, we created a similar visualization called a college payoff loan calculator.

2.1 New York Times – Financial Calculator

The article *Is It Better to Rent or Buy? A Financial Calculator* written by The New York Times addresses the complex financial decision of whether to rent or buy a home, which is one of the most significant financial choices many adults face. The main challenges include:

1. Difficulty in comparing the true costs of buying versus renting
2. Varied and complicated expenses associated with home ownership
3. Uncertainty about long-term financial implication of housing choices.

The New York Times aimed to create a comprehensive financial calculator that compares renting and buying. The authors also provided a tool that goes beyond simple affordability to analyze long-term financial impacts. The tool also accounted for multiple financial factors such as initial costs, recurring expenses, opportunity costs, tax implications, and potential property value changes.

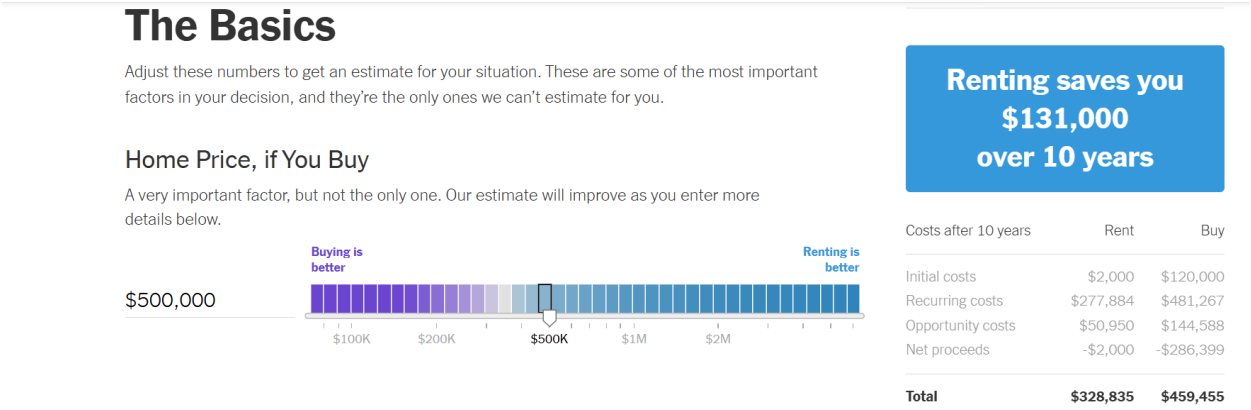


Figure 1 The New York times Buy-Rent Calculator

The interactive visualization and calculator allow readers to consider multiple financial variables and calculate costs over a specified period. There are key factors such as: home price,

[3] Bostock, M., Carter, S., Tse, A., & Paris, F. (2024, May 10). Is It Better to Rent or Buy? A Financial Calculator. *The New York Times*. https://www.nytimes.com/interactive/2024/upshot/buy-rent-calculator.html

monthly rent, mortgage details, tax considerations, potential property and investment appreciation, maintenance costs, and opportunity costs of investments. Overall, this tool allows readers to compare the total costs for renting and the total costs for buying over a specific period.

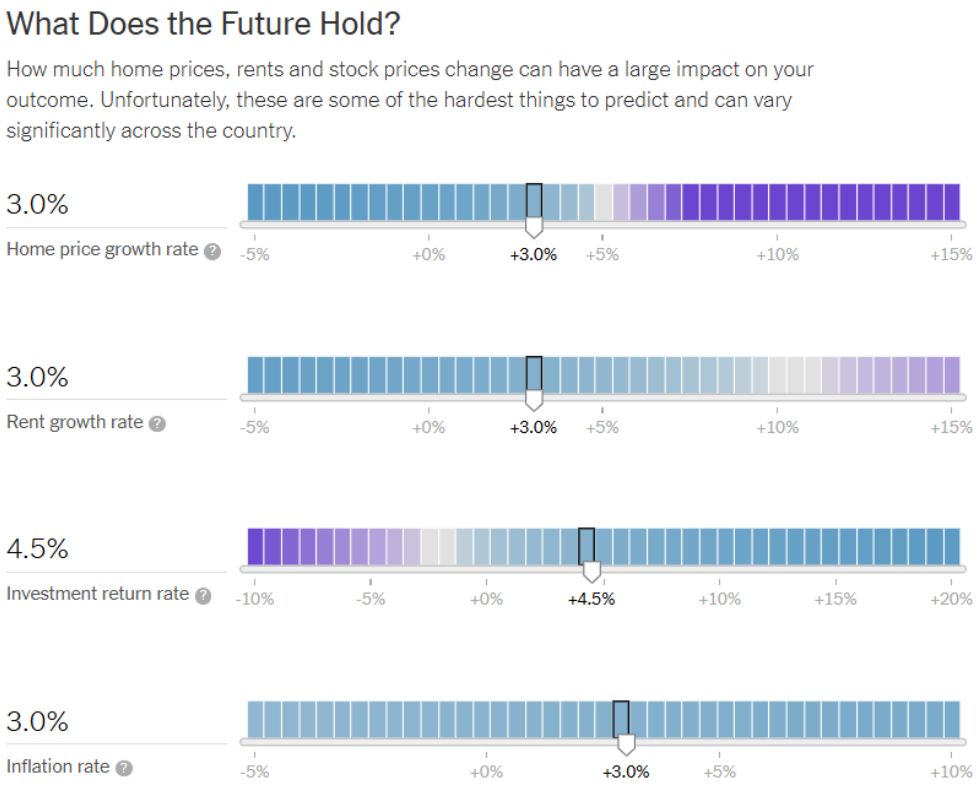


Figure 2 Rent-Buy Calculator Advanced Options

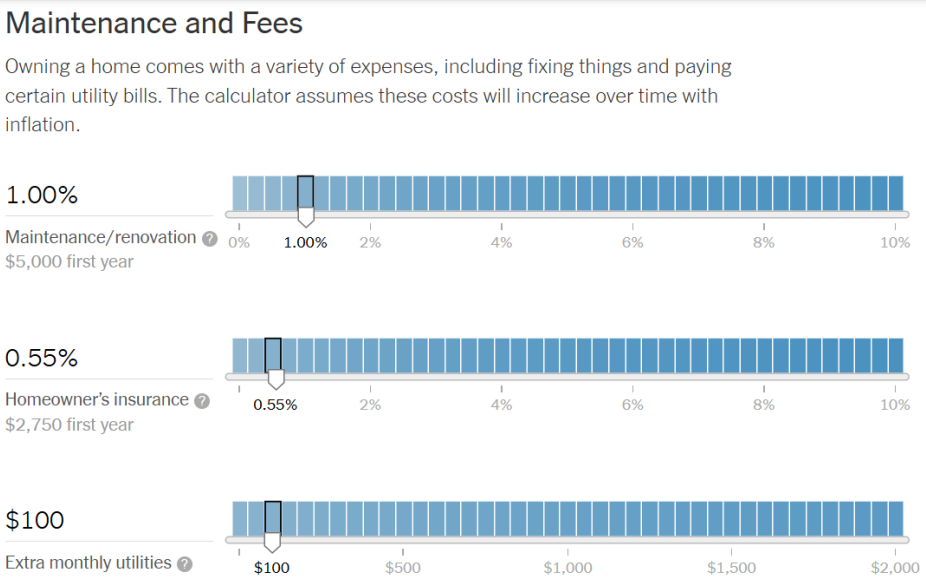


Figure 3 Rent-Buy Calculator Variable Options

The calculator emphasizes that the "winning choice" is not just about current affordability. It also acknowledges non-financial reasons for renting or buying and provides transparency about the complexity of the rent vs. buy decision. This tool also allows users to adjust variables to model their specific financial situation.

2.2 Giga Calculator – Value of College Degree Calculator

The college degree value calculator addresses critical challenges in higher education decision-making:[4]

1. Difficulty quantifying the financial return on educational investment
2. Uncertainty about the long-term economic impact of different education paths.
3. Complex calculation of opportunity costs associated with pursuing higher education.

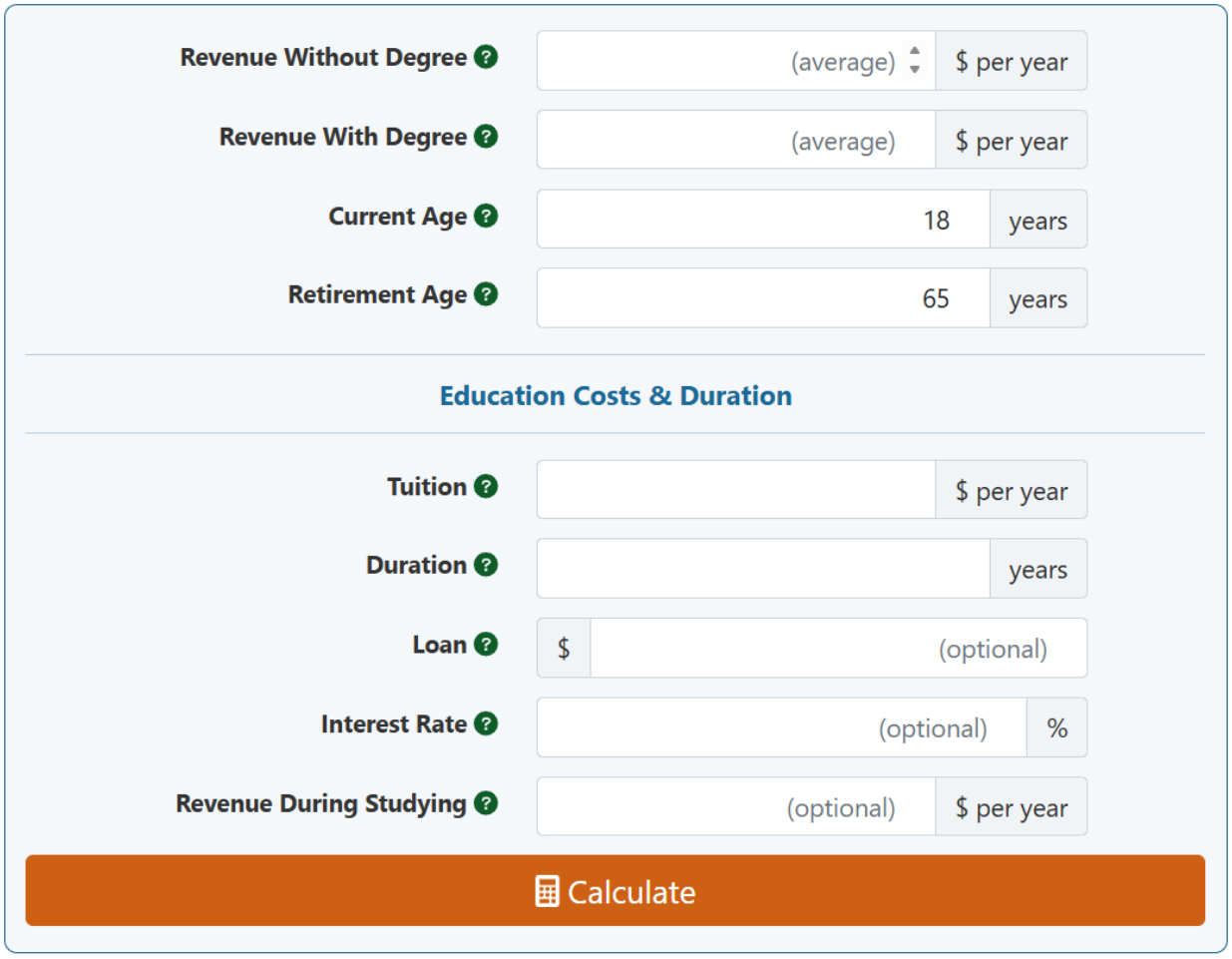


Figure 4 Value of College Degree Calculator

[4] Georgiev, G. Z. (2024). *College Degree Value Calculator*. Www.gigacalculator.com. https://www.gigacalculator.com/calculators/college-value-calculator.php

Giga calculator's tool allows for users to:

1. Analyze a personalized assessment of educational investment value.
2. Compare potential lifetime earnings across different educational levels
3. Help individuals make data-driven decisions about educational pursuits
4. Account for nuanced financial factors beyond simple salary comparisons.

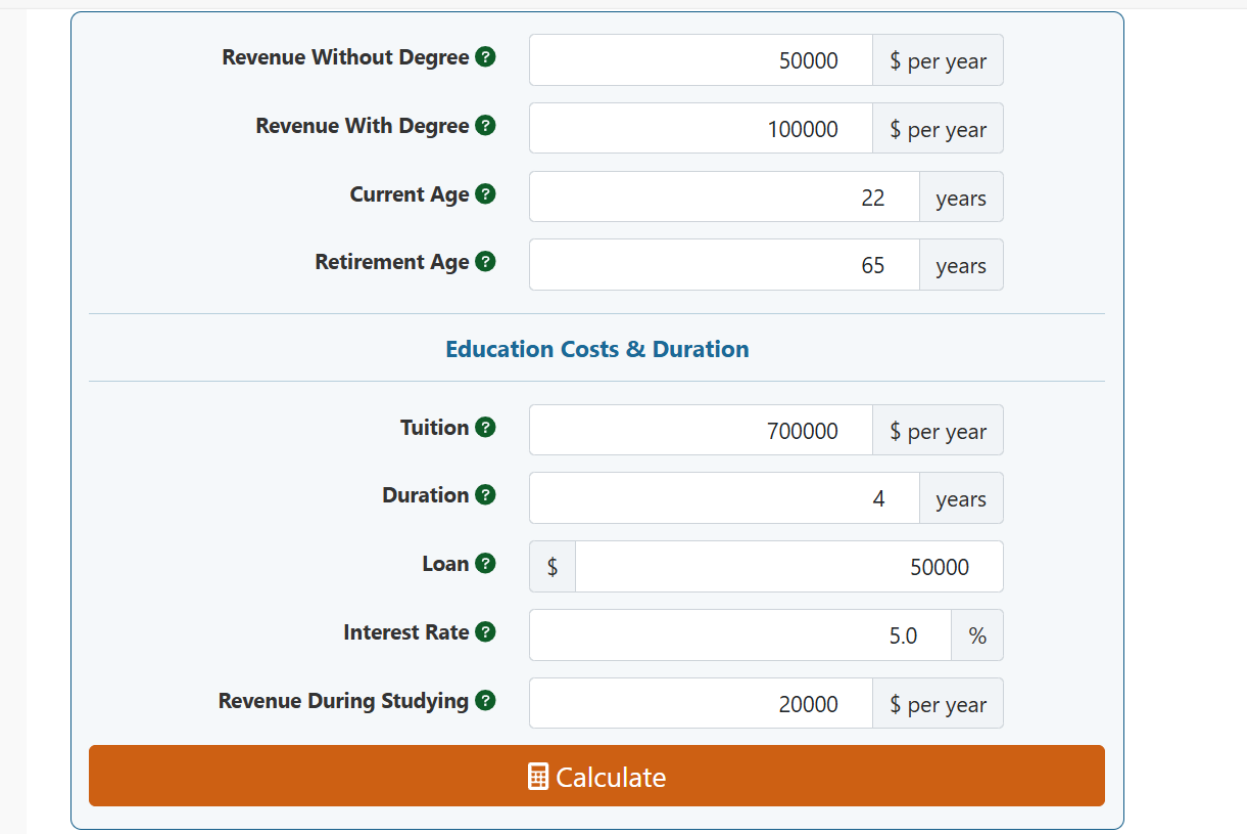


Figure 5 Example of College Degree Information

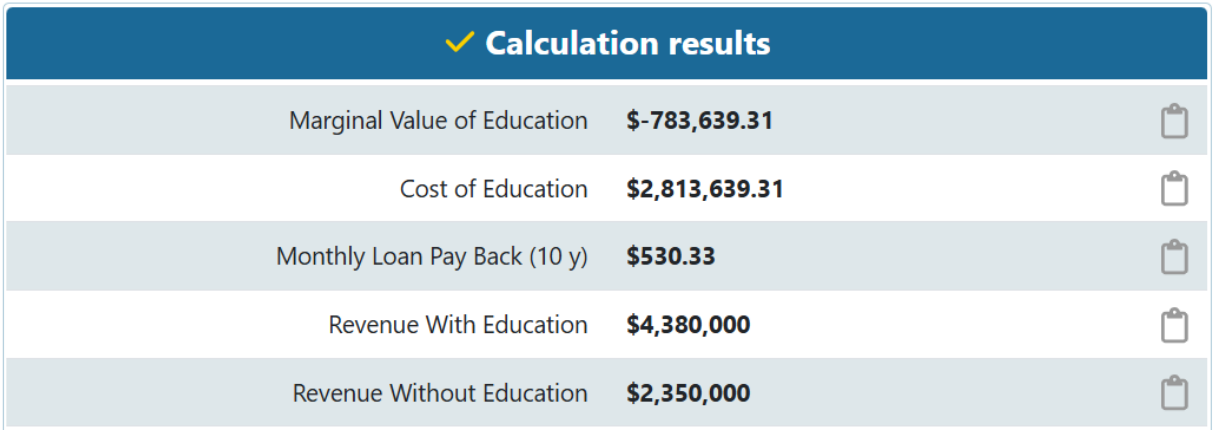


Figure 6 Example of Results of College Degree Information

The calculator is designed to analyze:

1. Projected lifetime earnings with and without a degree
2. Total Educational costs including:
    a. Tuition expenses
    b. Study duration
    c. Potential student loans
    d. Loan interest rates
3. Opportunity costs of education
4. Earnings potential during studies
5. Long-term financial trajectory from current age to retirement

Overall, this tool provides insights into:

1. Marginal value of additional education
2. Net financial benefit of pursuing a degree
3. Break-even point for educational investment
4. Comparative earnings potential across educational levels
5. Impact of student loans on overall financial outcomes.

The college value calculator allows individuals to have personalized calculations and a transparent methodology for assessing educational investment. A tool like this also allows individuals to make informed educational choices along with accounting or direct costs and opportunity costs.

2.3 Our Project – College Payoff Loan Calculator

The rising cost of higher education has created significant challenges for students making academic and financial decisions:

1. Lack of clear understanding of long-term financial implications of educational choices
2. Difficulty in comprehensively analyzing return on investment (ROI) for different educational paths
3. Limited tools that provide personalized, interactive financial projections for education

Our college payoff loan calculator will address these problems by:

1. Creating an interactive visualization tool for educational investment analysis

2. Providing a comprehensive, personalized approach to understanding education's financial impact
3. Enabling students to make informed decisions about their academic and career trajectories
4. Offering a unified platform for comparing different educational and career options

Our tool will be designed to analyze:

1. Comprehensive financial projections across multiple education levels
    a. High school diploma
    b. Associate's degree
    c. Bachelor's degree
    d. Master's degree
    e. Doctoral degree
2. Income trajectories based on:
    a. Specific degrees
    b. Industry variations
3. Detailed financial breakdown including:
    a. Initial education costs
    b. Potential student loans
    c. Projected earnings
    d. Time to recoup educational investment

Our key analytical features will provide insights into:

1. Personalized ROI for different educational paths
2. Break-even point for educational investment
3. Comparative earnings potential across education levels
4. Impact of degree choice on long-term financial outcomes
5. Visualization of income trajectories over time

Our tool is more sophisticated, personalized, and comprehensive than existing resources for educational financial planning because of the following unique value propositions:

1. Interactive and customizable financial projection tool
2. Addresses gap in existing educational financial analysis tools

3. Provides clear, visual representation of educational investment
4. Empowers students to make data-driven academic decisions
5. Accounts for multiple variables affecting educational ROI

The college payoff loan calculator will help students understand long-term financial implications of education and provide data-driven decisions to further pursue different educational choices. Overall, it will help reduce uncertainty in educational investment and support more informed decision-making about academic pursuits.

2.3.1 Limitations to Consider in Our Project

There are some limitations to consider when implementing our college payoff loan calculator. One limitation is that our project relies on projected and estimated data and that it cannot predict exact future earnings. Other limitations to consider include not accounting for non-financial benefits of education as well as that individual career paths may vary significantly.

3.0 Questions

Our project initially focused on visualizing the relationship between education levels and income while incorporating geographical data. We began with two key questions: *What is the correlation between education levels and income?* and *How do geography, major, institution, and other attributes take into account?*

As our project evolved, we shifted our focus to helping students understand the financial commitment they are taking on when pursuing higher education, along with the potential benefits and downsides. Originally, the visualization would have simply displayed correlation between education and salary, with region taken into account. By incorporating personalization and averages to our visualization, this allows students to make more informed decisions about their financial future and plan accordingly.

Throughout our exploration, we also took other questions into consideration: *Does geographic location affect your long-term salary?* and *How do Zodiac sign affect your future salary?* However, we ultimately chose to focus on higher education financial commitments due to the utility and novelty of this approach.

At the core, our visualization seeks to answer one overarching question: Is higher education financially worth it for me?

This main question branches into several key considerations:

- What college should I attend?
- Will my student loans be manageable?
- What major should I pursue?

Although many other factors influence these decisions, our visualization provides a financial lens to help users understand the monetary commitment involved.

4.0 Data

To build a comprehensive ROI analysis tool, we sourced data from multiple sites. As there was no dataset that found all the information we needed, we broke this up in parts and gained insight per each step. The first source was from the National Center for Education Statistics that reported the employment outcomes of bachelor's degree holders.

Fields of study	Median annual earnings
Electrical engineering	$78,700 (1,180)
Mechanical engineering	$74,000 (1,560)
Engineering, other	$70,500 (480)
Computer and information sciences	$70,100 (420)
General engineering	$68,900 (2,540)
Finance	$65,300 (710)
Economics	$64,900 (3,200)
STEM fields[1]	$60,800 (220)
Accounting	$60,000 (270)
Nursing	$58,700 (1,420)
Mathematics	$54,600 (1,480)

Figure 7: Median annual earnings of 25- to 29-year-old bachelor's degree holders, by selected fields of study 2018

Fields of study	Percent
Computer and information sciences	5.6 (0.65)
Multi/interdisciplinary studies	4.8 (1.11)
Liberal arts and humanities	4.6 (1.09)
English language and literature	4.4 (0.54)
Political science and government	4.2 (0.89)
Criminal justice and fire protection	3.8 (0.60)
Business, general	3.7 (0.60)
Fine arts	3.7 (0.40)
Linguistics and comparative language and literature	3.7 (0.96)
Business, other and medical administration	3.7 (0.74)
History	3.6 (0.71)

Figure 8: Average unemployment rates for 25- to 29-year-old bachelor's degree holders, by selected fields of study

This dataset provides insights into bachelor's degree holders aged 25 to 29, including their median annual earnings and unemployment rates across different fields of study. By processing and organizing this data, we were able to extract meaningful trends, such as which degrees lead to higher earnings and lower unemployment and how these metrics have changed over time. There were more datasets like the ones above not pictured here that we looked that used the earnings and unemployment rates by major and compared the 2018 dataset to a 2010 dataset. We did not have to clean or scrape this data as it was given to us in a clear format. However, we delved deeper into it by looking at it through graphs and using the information from this source on our website.

The second source that we used was a dataset that was published by the U.S. Census Bureau. It provides an overview of household income trends in the U.S. from 2022 to 2023. It presents median income levels adjusted to 2023 dollars, and it is broken down by household type, race, age, nativity, geographic region, metropolitan status, and educational attainment.

Table A-1.

Income Summary Measures by Selected Characteristics: 2022 and 2023

(Income in 2023 dollars, adjusted using the C-CPI-U. Households as of March of the following year. Information on confidentiality protection, sampling error, nonsampling error, and definitions is available at <https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar24.pdf>)

Characteristic	2022			2023			Percent change in real median income (2023 less 2022)[*,2]	
	Number (thousands)	Median income (dollars)		Number (thousands)	Median income (dollars)			
		Estimate	Margin of error[1] (±)		Estimate	Margin of error[1] (±)	Estimate	Margin of error[1] (±)
Educational Attainment of Householder								
Total, age 25 and older	125,300	79,000	708	126,300	82,010	633	*3.8	1.06
No high school diploma	9,632	36,230	1,553	9,546	36,620	1,162	1.1	5.29
High school, no college	31,830	53,510	801	31,810	55,810	988	*4.3	2.15
Some college	33,650	71,420	1,389	33,830	73,610	1,540	*3.1	2.69
Bachelor's degree or higher	50,180	123,000	1,900	51,150	126,800	1,462	*3.1	1.84

*An asterisk preceding an estimate indicates change is statistically different from zero at the 90 percent confidence level.

Figure 9: Census data by Educational Attainment

If we wanted to go more in depth and with more time with this project, we would have delved into more characteristics that this census dataset had provided us. However, we are only focusing on the educational attainment section of this dataset for this project. For this reason, we removed the other features to avoid target leakage when analyzing this dataset further.

The next dataset we used was from Kaggle and it provided information on the earning potential of various undergraduate majors, presenting salary figures at different career stages. It includes starting median salary, mid-career median salary, as well as the 10^{th} and 90^{th} percentile. The majors are categorized into three groups: STEM (Science, Technology, Engineering, and Mathematics), Business, and HASS (Humanities, Arts, and Social Sciences). Something that this dataset offered us perspective in was how salaries can increase depending on how far the individual is into their career journey. The data was well formatted, and did not need any extra work to refine into.

Undergraduate Major	Starting Median Salary	Mid-Career Median Salary	Mid-Career 10th Percentile Salary	Mid-Career 90th Percentile Salary	Group
Accounting	46000	77100	42200	152000	Business
Aerospace Engineering	57700	101000	64300	161000	STEM
Agriculture	42600	71900	36300	150000	Business
Anthropology	36800	61500	33800	138000	HASS
Architecture	41600	76800	50600	136000	Business
Art History	35800	64900	28800	125000	HASS
Biology	38800	64800	36900	135000	STEM
Business Management	43000	72100	38800	147000	Business
Chemical Engineering	63200	107000	71900	194000	STEM
Chemistry	42600	79900	45300	148000	STEM
Civil Engineering	53900	90500	63400	148000	STEM
Communications	38100	70000	37500	143000	HASS
Computer Engineering	61400	105000	66100	162000	STEM
Computer Science	55900	95500	56000	154000	STEM
Construction	53700	88900	56300	171000	Business
Criminal Justice	35000	56300	32200	107000	HASS
Drama	35900	56900	36700	153000	HASS

Figure 10: Kaggle Dataset on Salary by Major and Years into Career

We also investigated datasets from the Education Data website. It delved into an associate's degree, bachelor's degree, master's degree, or doctoral degrees and found which majors have the most to least amount of debt. This snippet below shows he associate's degree by debt.

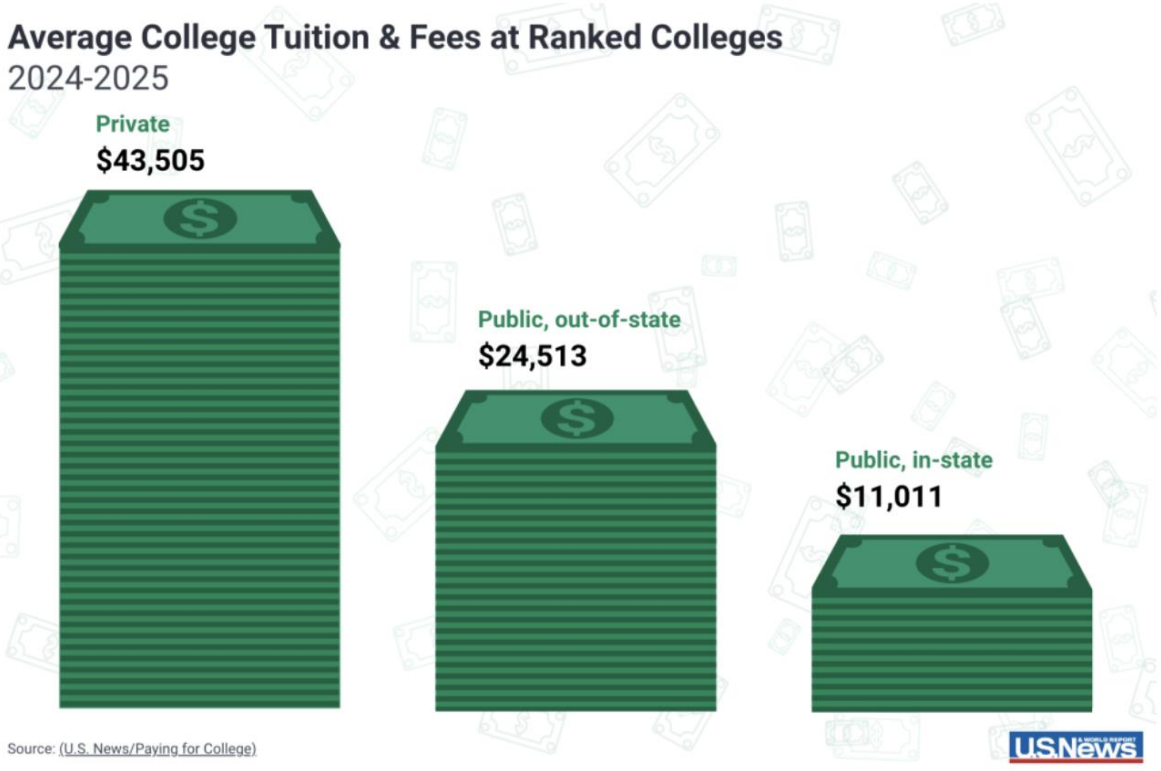
Associate's Degree Debt Table

College Major	2022 Median Debt
Alternative and Complementary Medicine and Medical Systems	$38,533
Non-Professional General Legal Studies (Undergraduate)	$34,713
Real Estate	$30,772
Computer Systems Analysis	$27,924
Religion/Religious Studies	$27,904
Human Computer Interaction	$27,527
Bible/Biblical Studies	$27,471
Public Health	$27,135

Figure 11: Associate's Degree Debt Table from Education Data

This website is important to us for this project because it also shows us the debt gap between the most indebted major and the least indebted major. For example, at the Bachelor's degree level there is a $33,293 difference between behavioral sciences at $42,822 median debt and science technologies at $9,529.

Finally, we also looked at the average college tuition and fees between private, public out-of-state, and public in-state institutions from U.S. News. By using this website, we get a clear visual of each type of college for their payments. This is something that we researched putting into our project to get a more accurate amount of debt per student.



Analyzing these datasets was crucial for our project, as it provided a data-driven foundation for estimating student loan repayment timelines and the return on investment for different degrees. By examining income distributions from the Census Bureau and salary trajectories by major, we gained insights into earning potential across different demographics, education levels, and career stages. This helped us design more accurate models for estimating loan payoff periods, factoring in realistic salary growth, industry disparities, and economic trends.

5.0 Exploratory Data Analysis

For our exploratory data analysis, we made or were provided with graphs with the data that was given to us above. This helped us analyze it deeper and retain results we could implement in our project.

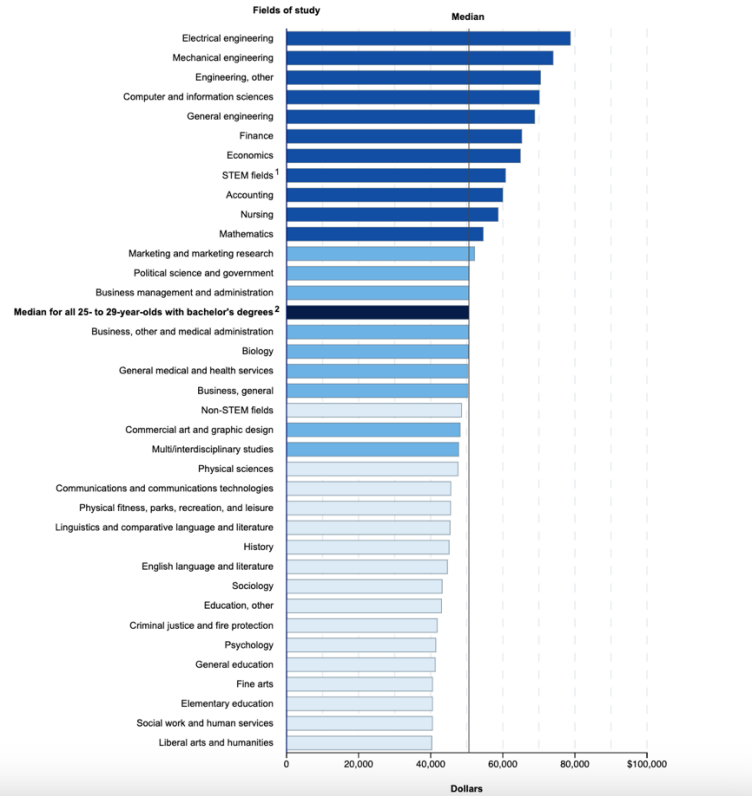


Figure 12: Average income by Major

We can now see that in 2018, about 35% of 25- to 29-year-olds had earned a bachelor's degree. This study looks at how much they earned, and their unemployment rates based on their field of study. On average, full-time workers with a bachelor's degree earned $50,600 per year, and their unemployment rate was 2.9%. Those with degrees in STEM fields earned more, with a median salary of $60,800. However, their unemployment rate (3.2%) was like that of all bachelor's degree holders. Salaries varied a lot depending on the major. The highest-paying degrees included electrical engineering ($78,700) and mechanical engineering ($74,000). On the other hand, liberal arts and humanities ($40,300), social work ($40,500), and fine arts ($40,500) had some of the lowest earnings. For the largest degree fields (with at least 300,000 graduates), salaries also differed. Graduates in fine arts ($40,500), psychology ($41,400), and communications ($45,600) earned less than the average bachelor's degree holder. Meanwhile, degrees in nursing ($58,700) and computer science ($70,100) had higher-than-average salaries. Some fields, like biology ($50,500) and business administration ($50,600), had earnings close to the overall median.

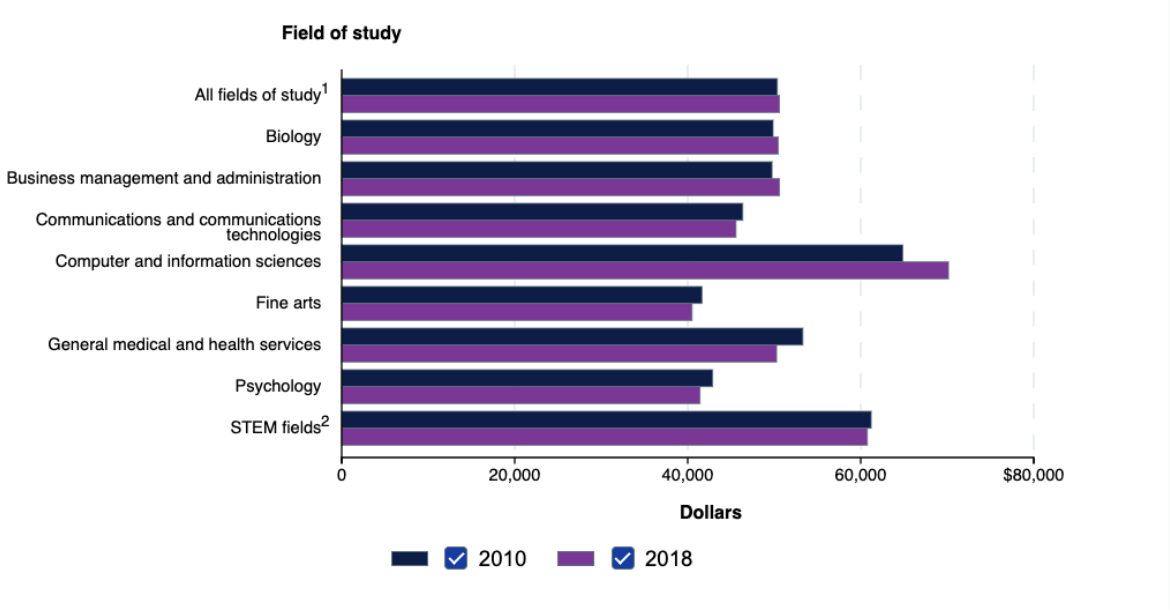


Figure 13: 2010 vs 2018 Annual Median Earning

We can also compare this between our 2010 and 2018 datasets where we see from 2010 to 2018, the unemployment rate for 25- to 29-year-olds with a bachelor's degree went down. However, their median yearly earnings stayed about the same at $50,600 in 2018 (adjusted for inflation). The only major that saw a noticeable increase in earnings was computer and information sciences, where median earnings rose from $64,900 in 2010 to $70,100 in 2018. All other fields had no significant change in earnings over that time.

Now, let's take a look at our average unemployment rates for 25- to 29-year-old bachelor's degree holders.

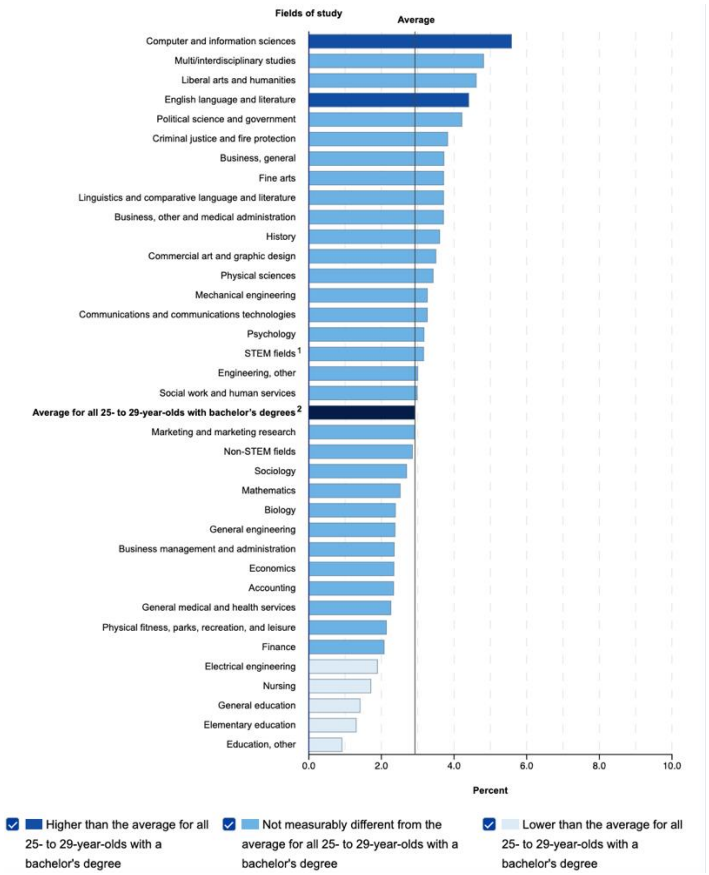


Figure 14: Average unemployment rates by major

In 2018, unemployment rates for 25 to 29-year-olds with a bachelor's degree ranged from 0.9% to 5.6%, depending on their field of study. Degrees in education, nursing, and electrical engineering had lower-than-average unemployment rates, while English and computer science had higher-than-average rates. Some fields, like electrical engineering and nursing, offered both strong job security and high salaries, while English graduates faced both lower pay and higher unemployment. Computer science graduates earned above-average salaries but also had one of the highest unemployment rates at 5.6%. Many other fields, such as business, biology, and psychology, had unemployment rates like the overall average.

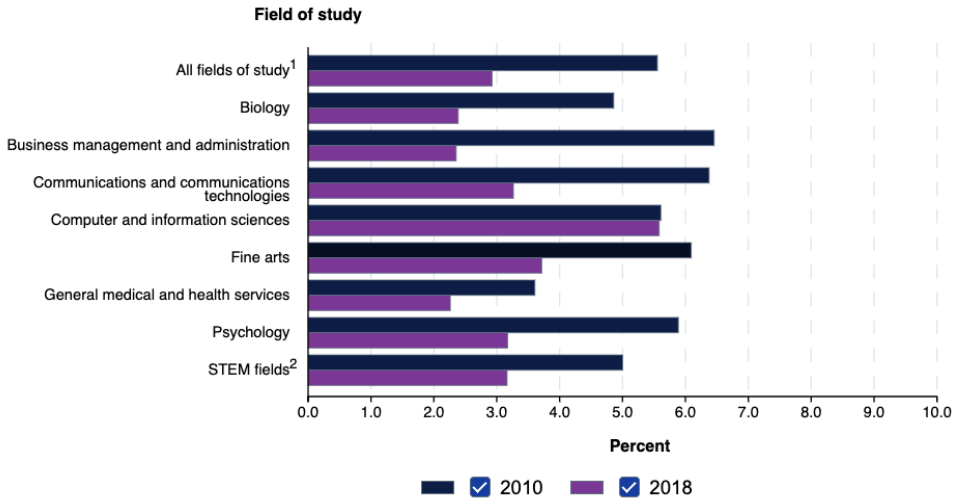


Figure 15: Unemployment rates by major

Between 2010 and 2018, unemployment rates dropped for most degree holders. The overall rate fell from 5.6% to 2.9%, with major improvements in fields like business (6.5% to 2.4%), psychology (5.9% to 3.2%), and communications (6.4% to 3.3%). There was no field where unemployment increased between 2010 and 2018. While job security improved, salaries remained mostly the same. The median earnings for all bachelor's degree holders were $50,600 in 2018, like their 2010 levels when adjusted for inflation. The only field that saw a noticeable increase in earnings was computer science, where salaries grew from $64,900 to $70,100. Most other fields had stable wages over the period.

Using the Census data, we also found that the median income between 2022 and 2023 for any degree completion has increased. No high school diploma has stayed stagnant. This shows that there is some value in completing an education as the years surpass.

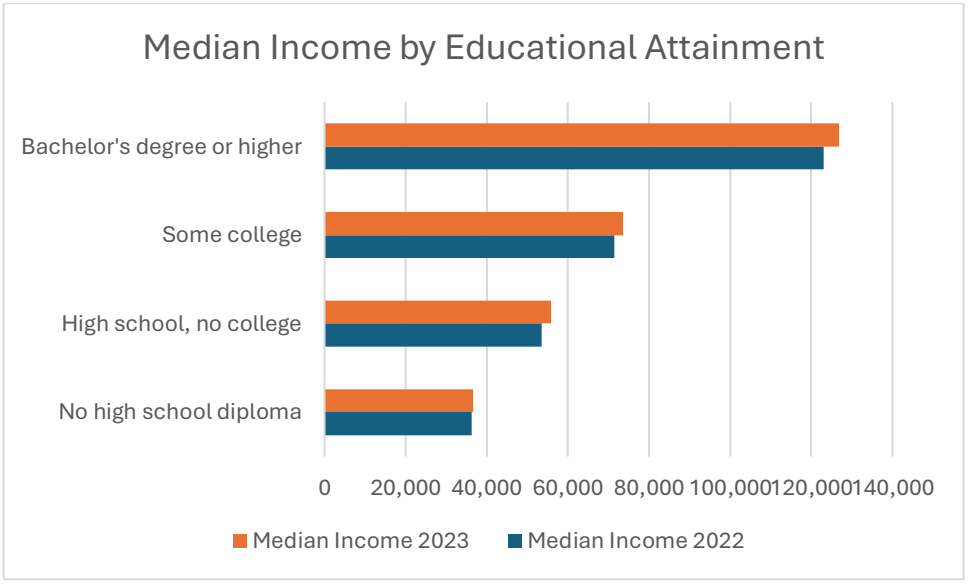


Figure 16: Education Attainment via Census Data

Using the Kaggle dataset that had grouped the majors by Business, HASS, and STEM, we created pivot tables and graphs to showcase the starting and mid-career salary differences. In each case, we can see a very strong similarity between all bar graphs. STEM is the highest, with Business being in the middle, and HASS having the lowest. As the years increase, this trend stays the same. HASS also has a much lower salary increase.

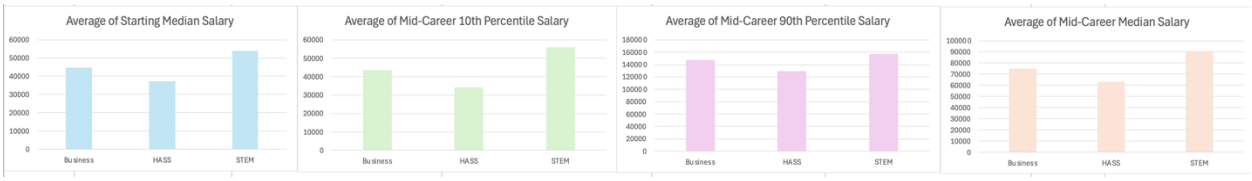


Figure 17: Kaggle Dataset Analysis

Finally, using the education data website with the highest amount of student loan borrowers by degree level, we can conclude these findings.

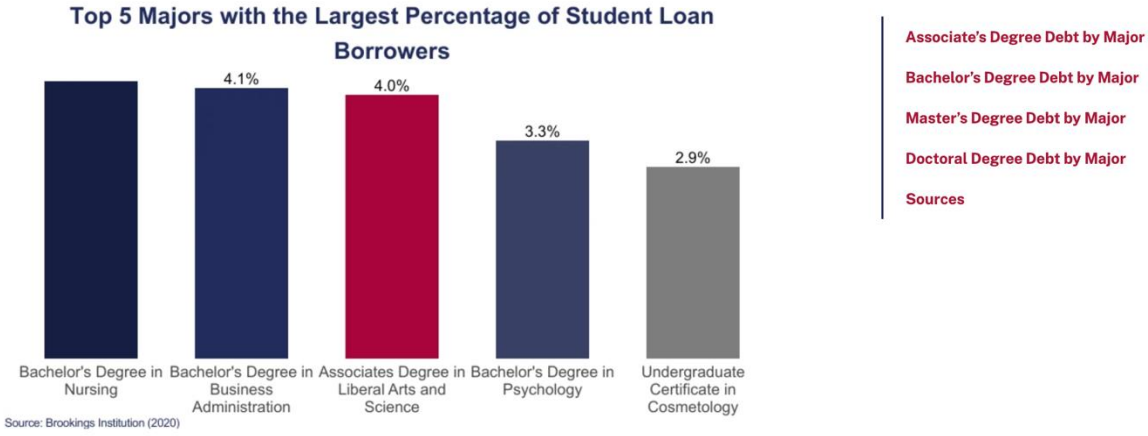


Figure 18: Top 5 Majors with Largest Percentage of Student Loan Borrowers

We mainly found that debt levels vary widely across different majors. At the bachelor's degree level, the gap between the most and least indebted majors is $33,293. Behavioral Sciences has the highest median debt at $42,822, while Science Technologies/Technicians, General has the lowest at $9,529. Among all degree levels, Doctor of Pharmacy, Pharmaceutical Sciences, and Administration carry the highest median debt at $310,330, whereas Biological and Physical Sciences has the lowest at $7,591.

Ultimately, our exploratory data analysis provided key insights into how a college major impacts income, job security, and debt. By visualizing trends in salaries, unemployment rates, and student debt, we identified clear differences between fields of study. Additionally, our analysis of student debt highlighted the vast financial disparities between majors, with some fields burdened by significantly higher loan amounts. These findings helped shape our project by emphasizing the importance of major selection in long-term financial stability and providing data-driven insights into the return on investment for different fields of study.

6.0 Design Evolution

The design process first started with a blank html form. This form served as the foundation of the project to bridge concept with reality. As seen in Figure 19 below, we initially created the form with five sliders and little to no color. This allowed us to be familiar with how the sliders interact and how to manipulate the data accordingly.

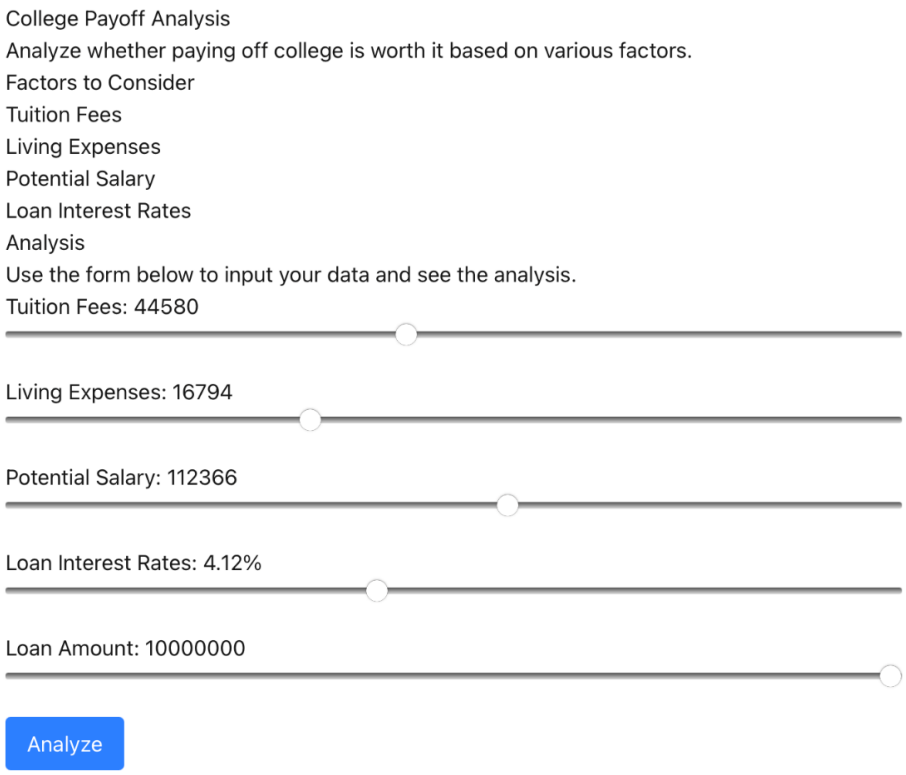


Figure 19: Initial Prototype Design of Application

The next step of our implementation process was to refine the questionnaire and form. The analyze data button was removed to promote user exploration with the tool. We decided against the button after careful consideration because it would hinder how the user would see the data by requiring them to push a button every time after moving a slider. This aligns with the feedback portion of design principles. As such, calculations performed were debounced to prevent lag. This means that there was a delay added to performing calculations and a limit to how many are performed at a time. Next, earnings calculations were added to the bottom of the page. As seen in Figure 20 below,

we added two sliders including No-college salary and years to compare. Like the New York Times Rent or Buy analysis tool, we wanted the comparison to have a certain level of customization.

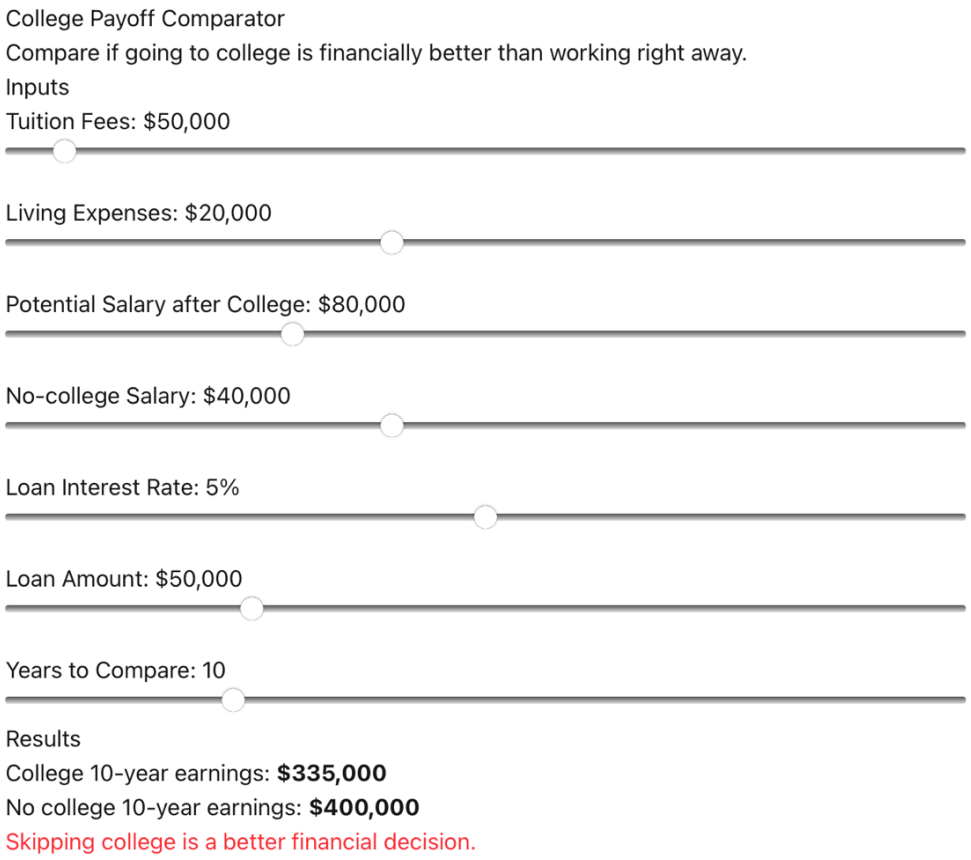


Figure 20: Second Prototype Design of Application

In the next iteration of the design, we focused on visibility and optics. We transitioned to a fully customized design through Tailwind CSS and added a gradient to the bars. Next, we added breakpoint functionality to the sliders. Like the New York Times Rent or Buy simulation, the breakpoint provides a point in which one side is of more value than the other (e.g. breakpoint in which college is more financially viable than no college). We decided to make the visualization in line with the selectors as it unifies the user experience. Instead of looking at the sliders then a separate graph, the sliders themselves become the graph to look at. For example, the gradients in the New York Times visualization align with their respective breakpoints. This is not present in this iteration yet as seen in Figure 21.

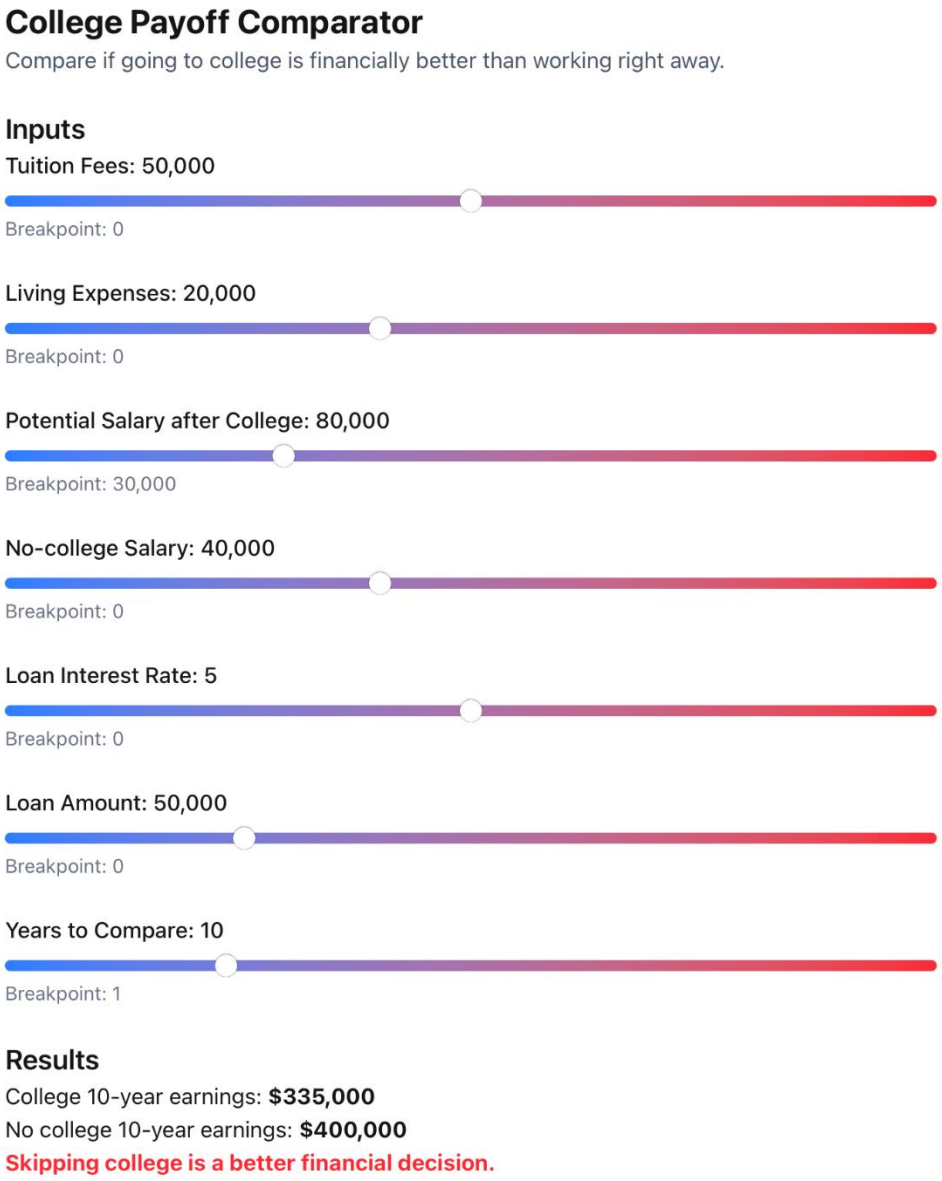


Figure 21: Third Prototype Design of Application

Next, we see Figure 22, the fourth prototype of the application. In this protype, the breakpoint is shown in the visualization to show where college becomes more worth it than no college and vice versa. This uses the perceptual principle that different colors stand out against each other. The results are still shown at the bottom for comparison. Colors were changed from blue/green and red to blue and purple to avoid any implicit bias from red and green as before. This focuses on the color perception perceptual principle where we did not want to evoke certain emotions associated with red or green with college or no college. We went through many color choices but ultimately decided on blue and purple as they are both indifferent and like the colors used by the New York Times in their visualization.

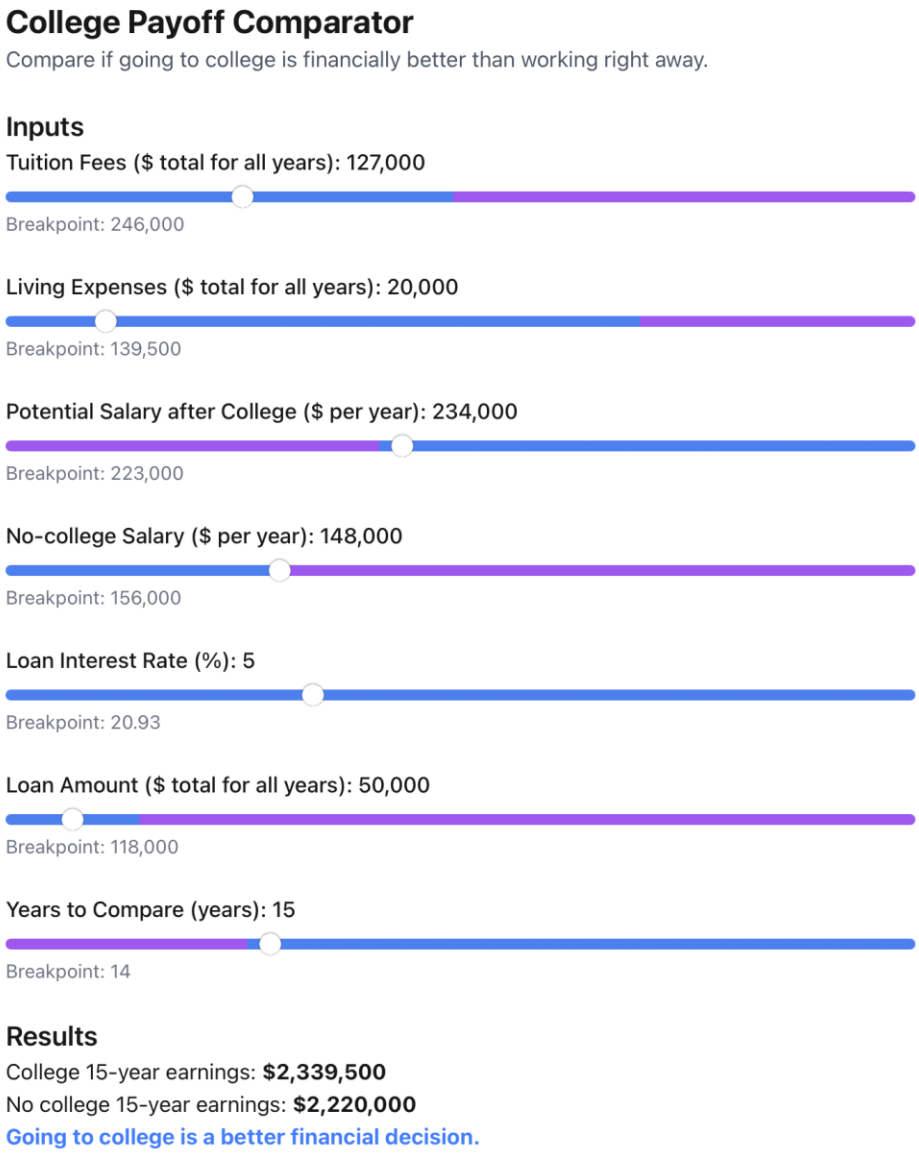


Figure 22: Fourth Prototype Design of Application

In Figure 23 and Figure 24, we present the final iteration of the project. We added an introduction and overview paragraph and directions to personalize the visualization for each person's specific situation. The results now show a styled view, emphasizing the difference between college and no college. There is also a disclaimer at the bottom of the results. We also added information about the formulas used to calculate the data for transparency and user understanding. This information is located at the bottom of the page. Lastly, the data and process report are shown on the website. In conclusion, we did not deviate from our proposal and stuck with many of the same design choices from the beginning.

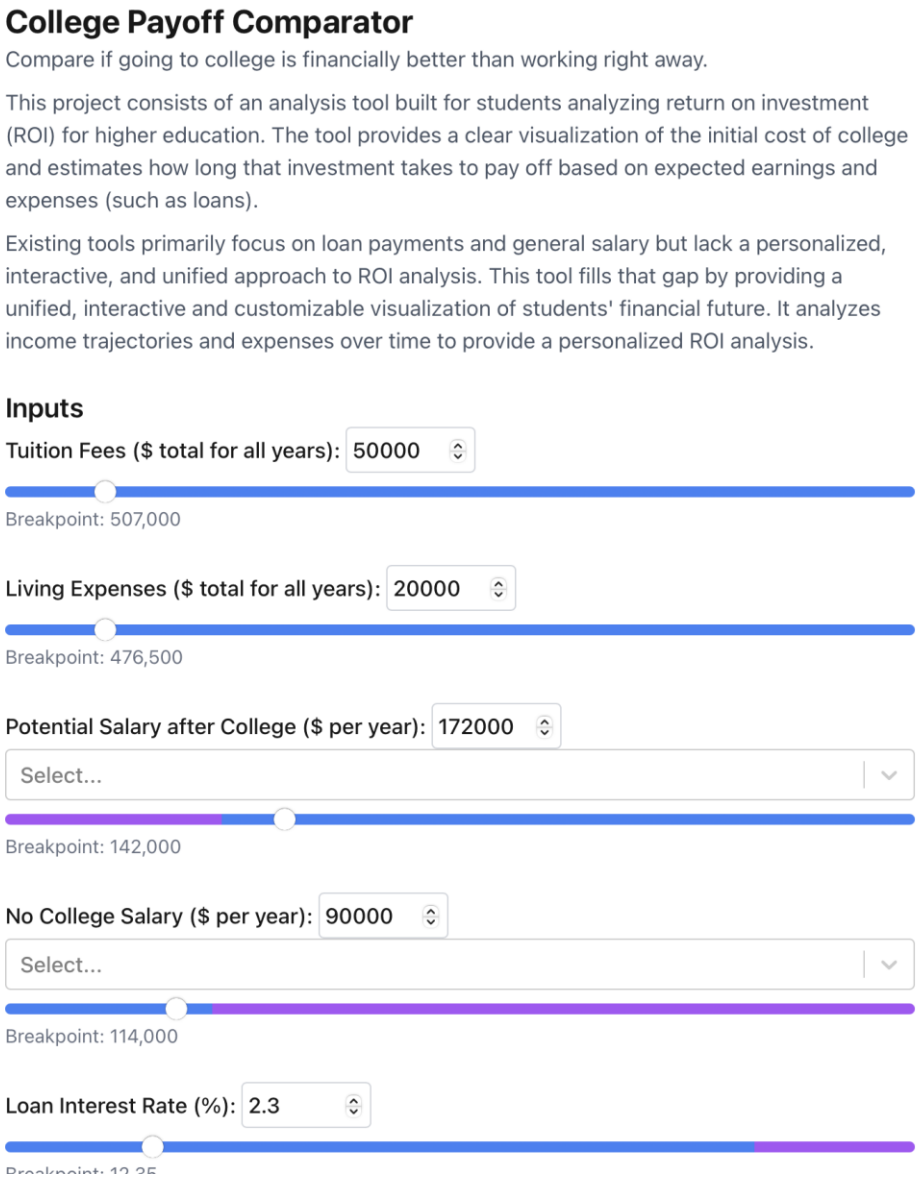


Figure 23: Top of Final Prototype Application

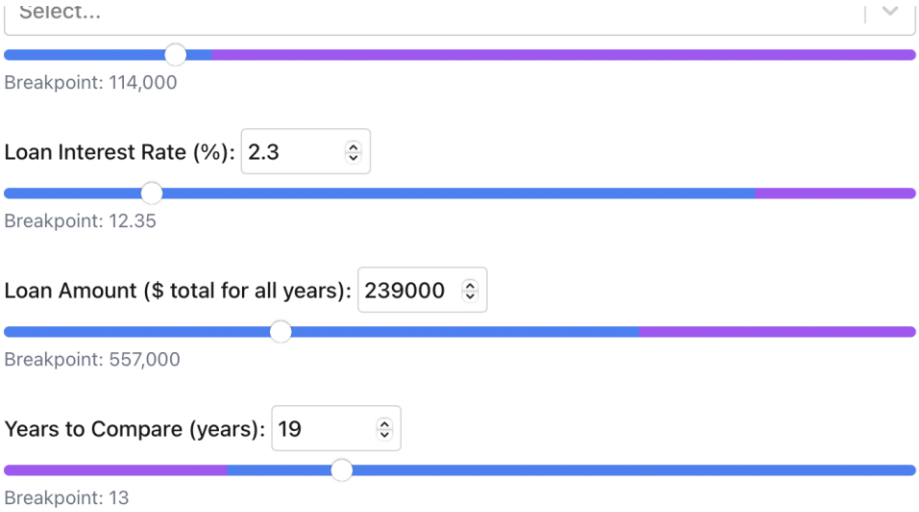


Figure 24: Bottom of Final Prototype Application

7.0 Implementation

The intent of the application is to provide a tool for exploratory analysis of different circumstances in which college is worth it or not worth it financially. The functionality of the tools is that it calculates on the fly and displays how college can be both worth it or not worth it with changes to income, job, loans, and more.

For instance, in Figure 25, it is clearly shown that college is only financially worth it for this individual if making over $161,000 a year. This data can be used to decide a specific major or course of study in college. Else, it would not be worth it financially for someone to go to college if not near the $161,000 salary mark.

Figure 25: Potential Salary with Breakpoint at $161,000

Furthermore, potential students can see their forecasted salary pulled from the U.S. Bureau of Labor Statistics, using the searchable dropdown on the right of the number box. As seen in Figure 26, by combining this data with average income of professions, students can consider their course of study with the financial obligation of college. Since this surpasses the breakpoint of $161,000, it would now be worth it to go to college, in this specific instance.

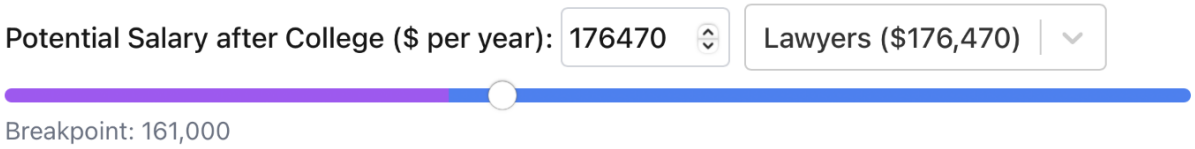


Figure 26: Surpassed Breakpoint and Salary Search Feature of Lawyer

The interactivity and visuals shown in Figures 25 and 26 are present in all seven of the sliders in the visualization. This allows users to explore what works for them and see how close they are to either financially make sense to attend college or vice versa. At the bottom of the sliders, users also see their results update in real time, as seen in Figure 27. In this specific instance, the results show slightly better to go to college and the difference. Figure 28 shows a general overview of of the page.

Results

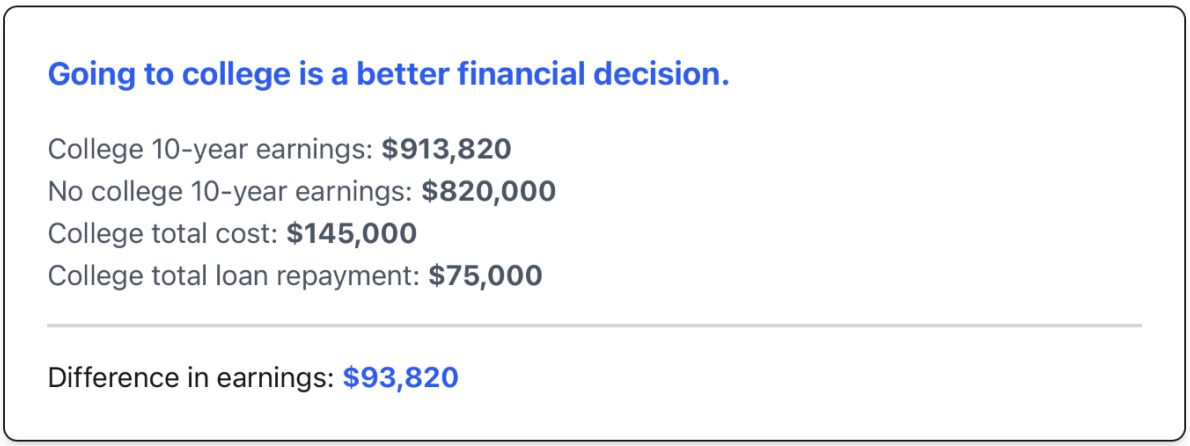


Figure 27: Results after Adjustment in Figure 26

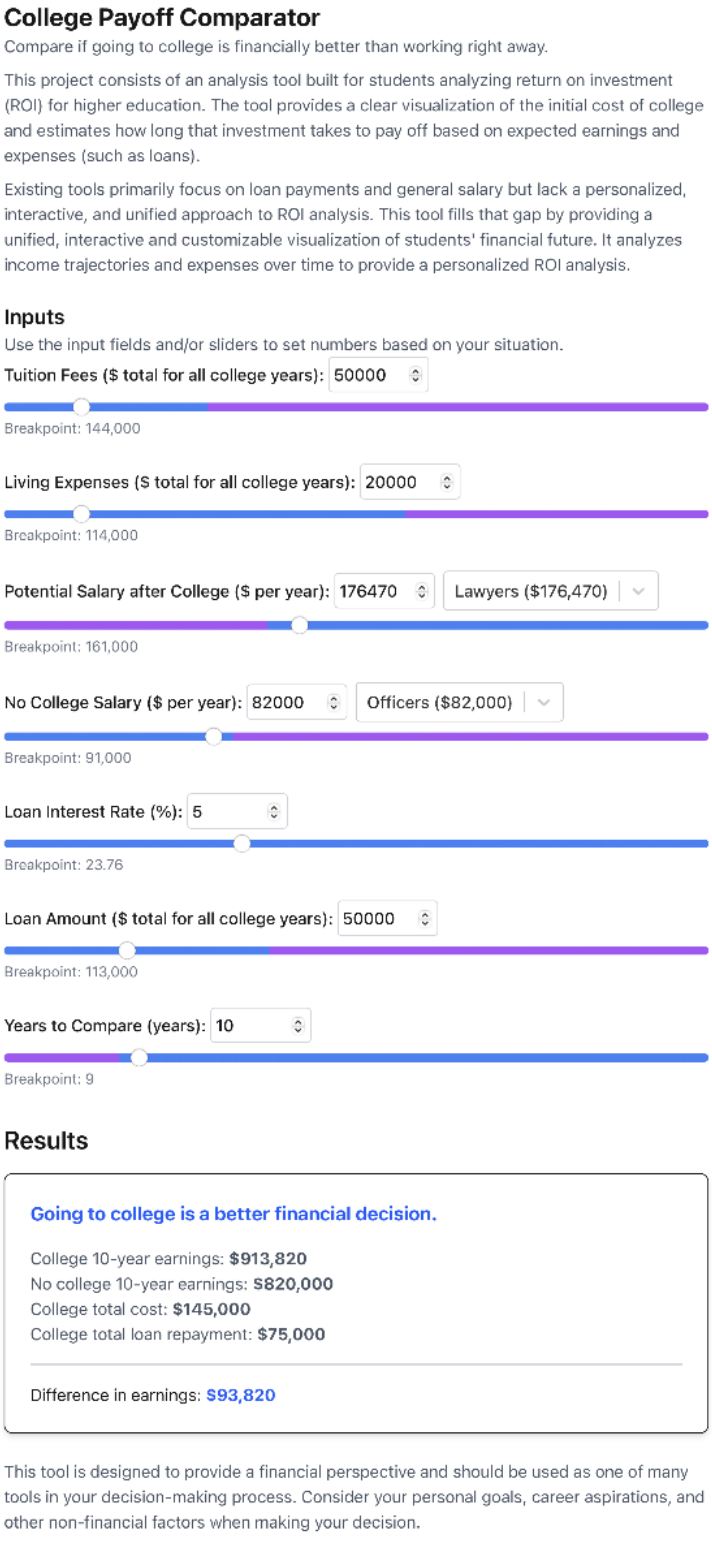


Figure 28: General Overview of Page after Adjustment in Figure 26

8.0 Evaluation

Overall, our tool provides a major improvement over existing tools for analysis. Since there are real time updates with breakpoints at each slider, this allows exploratory data analysis, a feature simply not present with traditional calculation tools. For example, in the Giga Calculator – Value of College Degree Calculator, mentioned in Section 2.2, it shows how you can enter numbers for college and no college to provide a numerical tabled analysis of the data. Although this is important to quantify the results, our visualization provides calculations while combining interactivity, exploratory analysis, and data sources of median salaries for jobs in many industries.

We answered questions about whether higher education is worth it for me, what major I should choose, and what college should I choose. We learned that in the long-term, in most cases college is financially worth it if you are going into a field that earns much more than out of high school. However, if you are already earning a good wage, then going to college is less financially beneficial and can be detrimental to your finances. It is also important to remember that finances are only one point of view in the decision.

We could have further improved the visualization by providing advanced sliders such as the New York Times did for their Rent or Buy visualization. This would include the cost of living outside of college, length of education, part time work during education, and many more. In addition, future work includes tuition data from different colleges, on top of the existing salary data. An upload csv feature would also be useful to upload your own data to compare.

In all, our visualization answered all our questions and provides a better solution than currently on the market. Although salary data can be quickly outdated, since it is from 2023, users will still be able to enter their own salary numbers.

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