**Project 1**

College - Is it worth it?

What our data set can tell us:

* All colleges by state
* All colleges year over year since 1997 -2022
* Average annual cost
  + Cost by program
* Degree type
* Field of study
* Earnings by field of study
* Debt by field of study - federal loans
* Debt by field of study - total debt
* Field of study monthly earnings
* Field of study monthly loan payment - federal
* Field of study monthly loan payment - total debt
* Race / ethnicity
* Repayment rate

Objectives/ things we want to understand:

* Look only at 21-22 year data
* 4 year university data
* If looking at state divide by region
* What is the average total cost of education? - 4 year universities (only)
  + Overall
  + State
  + Field of study
  + Public vs. private
  + Ivy leagues and public ivy leagues
  + Community college
* How much average debt taken on?
  + - - add ratio of debt to total cost
  + Overall
  + State
  + Field of study
  + Public vs. private
  + Ivy leagues and public ivy leagues
  + Community college
* How much are people earning after college?
  + Overall
  + State
  + Field of study
  + Public vs. private
  + Ivy leagues and public ivy leagues
  + Community college
* Time it takes to repay debt?
  + - Amount taken out vs. amount being repaid
  + Overall
  + State
  + Field of study
  + Public vs. private
  + Ivy leagues and public ivy leagues
  + Community college

**Possible outcomes:**

* X universities are most affordable
* X majors have highest income compared to tuition
* X has fastest debt repayment
* Yes college is still worth it if you’re a data science major

Data Columns of interest:

| Descrp | Column head | Other info |
| --- | --- | --- |
| ID No. | UNITID |  |
| Inst. Name | INSTNM |  |
| Predominant Degree | PREDDEG | Response 3 |
| Type of institution | CONTROL |  |
| Region | REGION | Might be useful |
| Overall admission rate | ADM\_RATE | (is the school worth all the hype?) |
| Instate tuition and fees | TUITIONFEE\_IN |  |
| Out of state tuition and fees | TUITIONFEE\_OUT |  |
| Median original amount of debt | DEBT\_MDN |  |
| Median debt at graduation | GRAD\_DEBT\_MDN |  |
| Repayment rate for completers after 1 year | COMPL\_RPY\_1YR\_RT |  |
| Repayment rate for completers after 3 years | COMPL\_RPY\_3YR\_RT |  |
| Repayment rate for completers after 5 years | COMPL\_RPY\_5YR\_RT |  |
| Repayment rate for completers after 7 years | COMPL\_RPY\_7YR\_RT |  |
| Mean earnings of students working and not enrolled 10 years after entry | MN\_EARN\_WNE\_P10 |  |
| Mean earnings of students working and not enrolled 6 years after entry | MN\_EARN\_WNE\_P6 |  |
|  |  |  |
|  |  |  |

Scope write up:

Since 1980, the average college tuition and fees have increased 1200%. Americans at a young age continue to take on significant debt to pay for higher education while graduates years later are still struggling to repay their loans raising the question, is college worth it?

This analysis will look at costs from 2021-22 academic year related to American colleges and universities that predominantly offer 4-year bachelor's degrees including:

* Annual cost to attend
* Debt from students
* Median income of graduates
* Time to repay debt

The analysis will explore and aim to answer:

* Which schools / fields of study are most and least expensive
* Which schools / fields of study have the highest debt
* Which schools / fields of study have the highest and lowest income
* The rate at which debt is paid off and total time to be debt free
* Which schools or fields of study offer the best return on investment for 4-year education (and which are the worst)
* Which schools or fields of study take the longest or shortest time to pay off
* Are there significant differences by school or field of study in terms of cost, amount of debt, income, and time to pay off debt

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Hypotheses:

* The relationship between tuition cost and debt will be strong (ie debt and tuition increase at the same rate or close to the same rate)
* Students with higher incomes will pay their debts off faster (this might not be true depending on their cost of living / lifestyle)
* Higher tuition fields of study will result in higher post grad incomes (also not necessarily true)

Fields of Study:

1. Agriculture CIP01BACHL
2. Ethnic\_cultural\_gender CIP05BACHL
3. Communication (journalism) CIP09BACHL
4. Computer / IT CIP11BACHL
5. Education CIP13BACHL
6. Engineering CIP14BACHL
7. English CIP23BACHL
8. Biological and Biomedical CIP26BACHL
9. Mathematics CIP27BACHL
10. Philosophy / religious CIP38BACHL
11. Psychology CIP42BACHL
12. Social science CIP45BACHL
13. Visual performing CIP50BACHL
14. Business\_marketing CIP52BACHL
15. History CIP54BACHL

To dos:

Convert Type #s to text meaning

Convert Region #s to text meaning

Charts to make

Musa

Region vs. Instate tuition (avg? Median?) box and whiskers or bar

Type vs. Instate tuition (avg? Median?) box and whiskers or bar

Major vs. Instate tuition (avg? Median?) box and whiskers or bar

Imen

Region vs. Median Debt at Graduation (avg? Median?) box and whiskers or bar

Type vs. Median Debt at Graduation (avg? Median?) box and whiskers or bar

Major vs. Median Debt at Graduation (avg? Median?) box and whiskers or bar

Kat

Region vs. Debt repayment rate 5 years (avg? Median?) box and whiskers or bar

“Same charts as above^

Abdullah

Region vs. earnings after 6 years (avg? Median?) box and whiskers or bar

““Same charts as above^

Look at these by region, major Type of school

Musa

* Tuition vs. median debt at graduation (scatter with trend line)

Imen

* Median debt at graduation vs. debt repayment rate - 5 years (scatter with trend line)

Kat

* Repayment rate vs. earnings (scatter with trend line)

Abdullah

* Tuition vs. earnings (scatter with trendline)

| REGION | State/Territory | Name |
| --- | --- | --- |
| 1 | CT, ME, MA, NH, RI, VT | New England |
| 2 | DC, DE, MD, NJ, NY, PA | Mid-atlantic |
| 3 | IL, IN, MI, OH, WI | East north central |
| 4 | IA, KS, MN, MO, ND, NE, SD | West North central |
| 5 | AL, AR, FL, GA, KY, LS, MS, NC, SC, TN, VA, WV | Southeast |
| 6 | AZ, NM, OK, TX | Southwest |
| 7 | CO, ID, MT, UT, WY | North Central |
| 8 | AK, CA, HI, NV, OR, WA | West |
| 9 | PR, VI | U.S. Territories |