

# Data Derby 2024 Challenges



## Novice Level:

1. National education cost data: Use the data in the first tab, TABLE CP-1 to investigate the trends of the tuitions in the public 2-year, 4-year, and private 4-year schools. Did you observe different trends between the public 2-year, public 4-year, and private schools? Show your visualization and share your insights about the comparison of the three trends ((anything in common? anything different?)
2. National education cost data: Use the TABLE-CP2 data to summarize the trends and patterns for the six regions: middle states, Midwest, new England, south, southwest, and west states. Did you observe different trends between the six regions for 2-year schools? How about for 4-year schools? How about between the 2-year and 4-year schools in different regions? Show your visualizations and share your insights about the comparison of the trends between regions. (anything in common? anything different) Share any stories that you find.
3. National education cost data: Use the TABLE-CP3 data for different states, summarize the trends for all the states. Describe what you observed among the states for the two-year schools and four-year schools, and compare the two-year and four-year schools.
4. Minnesota data: Use the Tuition Trend data to analyze the trends for Minnesota colleges and universities, including State 2-year, 4-year, University of Minnesota, and private schools. What did you observe for those types of schools? Compare the trend in Minnesota with what you found nationally in question 1, is Minnesota trends for the 2-year, 4-year and private schools comparable with the national trends of those types of schools? Describe your findings.
5. Salary potential data: Use the salary potential data and the National data of different states to analyze if there is any strong correlation between the state average tuition rate and the early career pay. What about mid-career pay? Note that the salary potential data is only for the academic year of 2018-2019.

Please explain your data processing and data analysis methodologies for each approach. Please feel free to include any other data resources than what's provided to help answering the questions.

## Advanced Level

1. National education cost data: Use the data in the first tab, TABLE CP-1 to investigate the trends of the tuitions in the public 2-year, 4-year, and private 4-year schools.
  - a) Did you observe different trends between the public 2-year, public 4-year, and private schools? Show your visualization and share your insights about the comparison of the three trends ((anything in common? anything different?))
  - b) Did you find significant difference in tuition rates among the public 2-year, public 4-year, and private schools? Use appropriate statistical analysis (or models) and statistical measurements to support your findings. Report your statistics.
  
2. National education cost data: Use the TABLE-CP2 data to summarize the trends and patterns for the six regions: middle states, Midwest, new England, south, southwest, and west states.
  - a) Did you observe different trends between the six regions for 2-year schools? How about for 4-year schools? How about between the 2-year and 4-year schools in different regions? Show your visualizations and share your insights about the comparison of the trends between regions (anything in common? anything different)
  - b) Did you find significantly difference in average tuition between the six regions? Use appropriate statistical analysis (or models) and statistical measurements to support your findings. Report your statistics.
  
3. National education cost data: Use the TABLE-CP3 data for different states, summarize the trends for all the states. Describe what you observed among the states for the two-year schools and four-year schools, and compare the two-year and four-year schools.
  
4. Minnesota data: Use the Tuition Trend data to analyze the trends for Minnesota colleges and universities, including State 2-year, 4-year, University of Minnesota, and private schools.
  - a) What did you observe for those types of schools? Compare the trend in Minnesota with what you found nationally in question 1, is Minnesota trends for the 2-year, 4-year and private schools comparable with the national trends of those types of schools? Describe your findings.
  - b) Predict the 2020, 2021, 2022 and 2023 tuitions for the University of Minnesota, Minnesota State 2-year school average, and Minnesota State 4-year school average, using the national trend that you found in question 1.
  
5. National education cost data: Use the TABLE-CP4 data for the in-state and out-state tuition for all the states, to summarize the average tuition of in-state and out-state for each state across years. Describe your finding. Are all the states in the same difference between the in-state and out-state? Why?
  
6. Salary potential data: Use the salary potential data and the National data of different states to analyze if there is any strong correlation between the state average tuition rate and the early career pay. What about mid-career pay? Note that the salary potential data is only for the academic year of 2018-2019.

Please explain your data processing and data analysis methodologies for each approach. Please feel free to include any other data resources than what's provided to help answering the questions.

## Graduate Level

1. National education cost data: Use the data in the first tab, TABLE CP-1 to investigate the trends of the tuitions in the public 2-year, 4-year, and private 4-year schools.
  - a) Did you observe different trends between the public 2-year, public 4-year, and private schools? Show your visualization and share your insights about the comparison of the three trends ((anything in common? anything different?)
  - b) Did you find significant difference in tuition rates among the public 2-year, public 4-year, and private schools? Use appropriate statistical analysis (or models) and statistical measurements to support your findings. Report your statistics.
  
2. National education cost data: Use the TABLE-CP2 data to summarize the trends and patterns for the six regions: middle states, Midwest, new England, south, southwest, and west states.
  - a) Did you observe different trends between the six regions for 2-year schools? How about for 4-year schools? How about between the 2-year and 4-year schools in different regions? Show your visualizations and share your insights about the comparison of the trends between regions (anything in common? anything different)
  - b) Did you find any significant difference in average tuition between the six regions? Use appropriate statistical analysis (or models) and statistical measurements to support your findings. Report your statistics.
  
3. National education cost data: Use the TABLE-CP3 data for different states, summarize the trends for all the states. Describe what you observed among the states for the two-year schools and four-year schools, and compare the two-year and four-year schools.
  
4. Minnesota data: Use the Tuition Trend data to analyze the trends for Minnesota colleges and universities, including State 2-year, 4-year, University of Minnesota, and private schools.
  - a) What did you observe for those types of schools? Compare the trend in Minnesota with what you found nationally in question 1, is Minnesota trends for the 2-year, 4-year and private schools comparable with the national trends? Describe your findings.
  - b) Predict the 2020, 2021, 2022 and 2023 tuitions for the University of Minnesota, Minnesota State 2-year school average, and Minnesota State 4-year school average, using the national trend that you found in question 1.
  
5. National education cost data: Use the TABLE-CP4 data for the in-state and out-state tuition for all the states, to summarize the average tuition of in-state and out-state for each state across years. Describe your finding. Are all the states in the same difference between the in-state and out-state? Why?
  
6. Salary potential data: Use the salary potential data and the National data of different states to analyze if there is any strong correlation between the state average tuition rate and the early career pay. What about mid-career pay? Note that the salary potential data is only for the academic year of 2018-2019.

7. Graduation rate question: Use the graduation rate question to analyze if there is any correlation between the tuition rate and the graduation rate for Minnesota colleges and universities.

Please explain your data processing and data analysis methodologies for each approach. Please feel free to include any other data resources than what's provided to help answering the questions.

