**Capstone Project Proposal 01**

# Background

The Introduction provides a brief overview of current trends in American education, highlighting key data - - participation of students, teachers, and faculty in U.S. educational institutions;   
- performance of U.S. elementary/secondary students overall;   
- numbers of high school graduates and postsecondary degrees; and   
- the amounts of expenditures on education at the elementary/secondary and postsecondary levels.  
  
ED Data Inventory

The goal of the ED Data Inventory is to describe all data reported to the Department of Education, with the exception of personnel and administrative data. It includes data collected as part of grant activities, along with statistical data collected to allow publication of valuable statistics about the state of education in this country. The ED Data Inventory includes descriptive information about each data collection, along with information on the specific data elements in individual collections.

# Selected Criteria

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| **NAEP (National Assessment of Educational Progress)** | |
| Mathematics, Grade 4, 1990¹, 1992¹, 1996¹, 1996, 2000¹, 2000, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017 | |
| Framework: | 1990 Mathematics |
| Scale: | Composite scale |
| Jurisdiction: | National |
| Variables: | All students [TOTAL] |
| Statistic: | Average scale scores |

<https://datainventory.ed.gov>

<https://datainventory.ed.gov/AboutTheInventory>

<https://nces.ed.gov/surveys/annualreports/>

<https://nces.ed.gov/programs/digest/d16/tables/dt16_501.50.asp>

<https://nces.ed.gov/programs/digest/d16/tables/dt16_318.30.asp?current=yes>

# Approach Files available for this study: <https://nces.ed.gov/programs/digest/d13/tables/dt13_221.10.asp>

1. Explore and understand the data along with different fields
2. Analyze data, and wrangling as applicable; basic statistics will be performed - calculate the min, max, mean percentage of a series across grades; Define and display average percentage per year plot across disaggregated groups - sex, Race/ethnicity, Percentage of students in school eligible for FRM (Free and Reduced Meal); ELL/ NonELLs; for 4th; 8th and 12th grade students.
3. Investigate statistics of the percentage of Boys and Girls graduated for the selected years. The NAEP Data Explorer (<https://www.nationsreportcard.gov/ndecore/xplore/nde>) provides national and state results for all main subject areas assessed, including mathematics, reading, writing and science by grade and school characteristics
4. Analyze the data for Average NAEP reading scale score of 4th grade public school studentsand percentage attaining reading achievement levels, by states: Selected years.  
   <https://nces.ed.gov/programs/digest/d16/tables/dt16_221.40.asp?referrer=report>

# Deliverables

1. Report/Paper that produces something like <https://www.nationsreportcard.gov/math_2017/#nation/scores?grade=4>
2. Jupyter Notebooks with intermediate data analysis