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**SAP ID – 500108525**

**ROLL NO – R2142220982**

**BATCH- 4 (AIML-NON HONS.)**

**PREDICTIVE ANALYTICS LAB- 4**

**Python Library Pandas:**

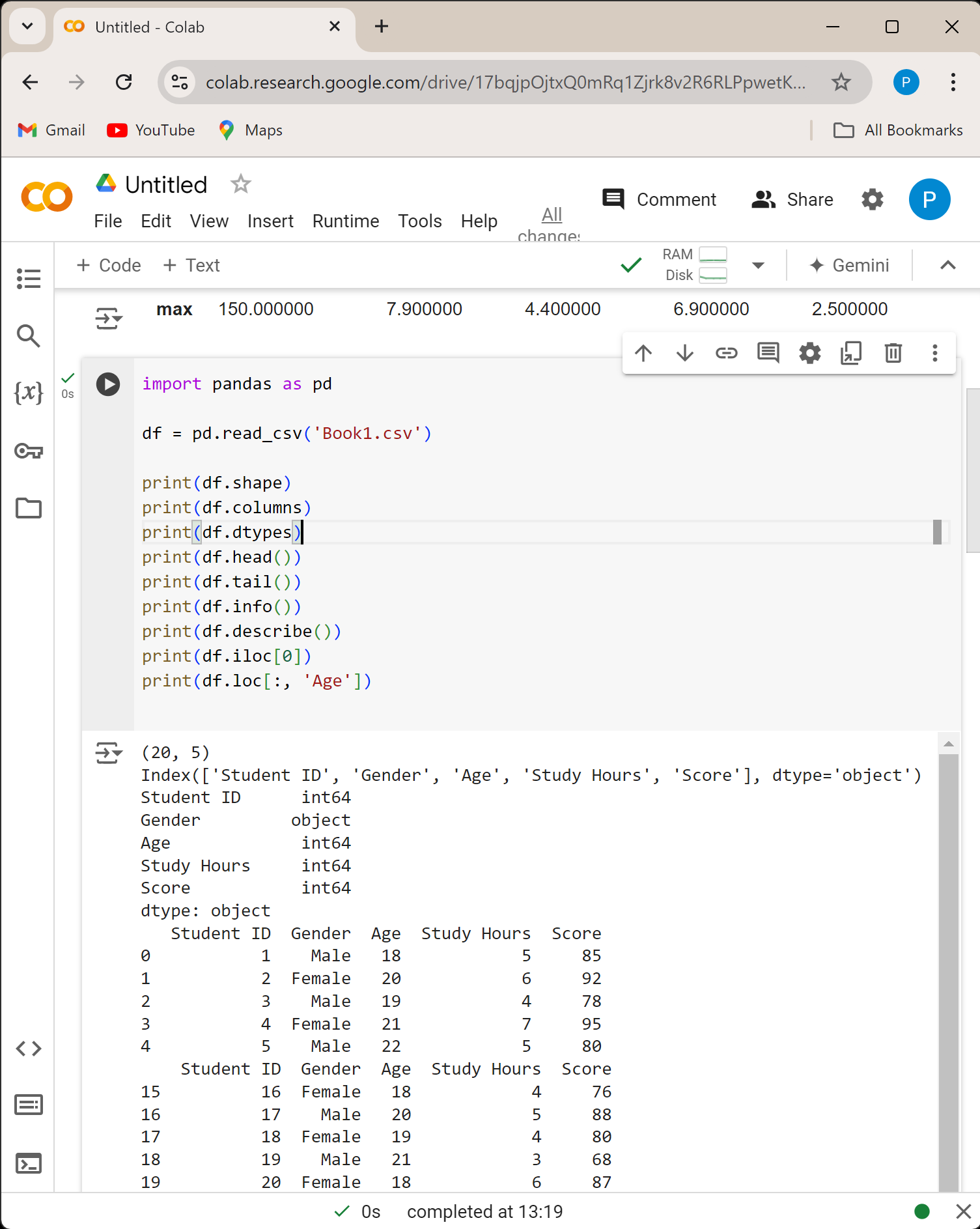
**Q1.  Loading and Inspecting Data:**

**·         Load various data formats (CSV, Excel, JSON) into Pandas DataFrames.**

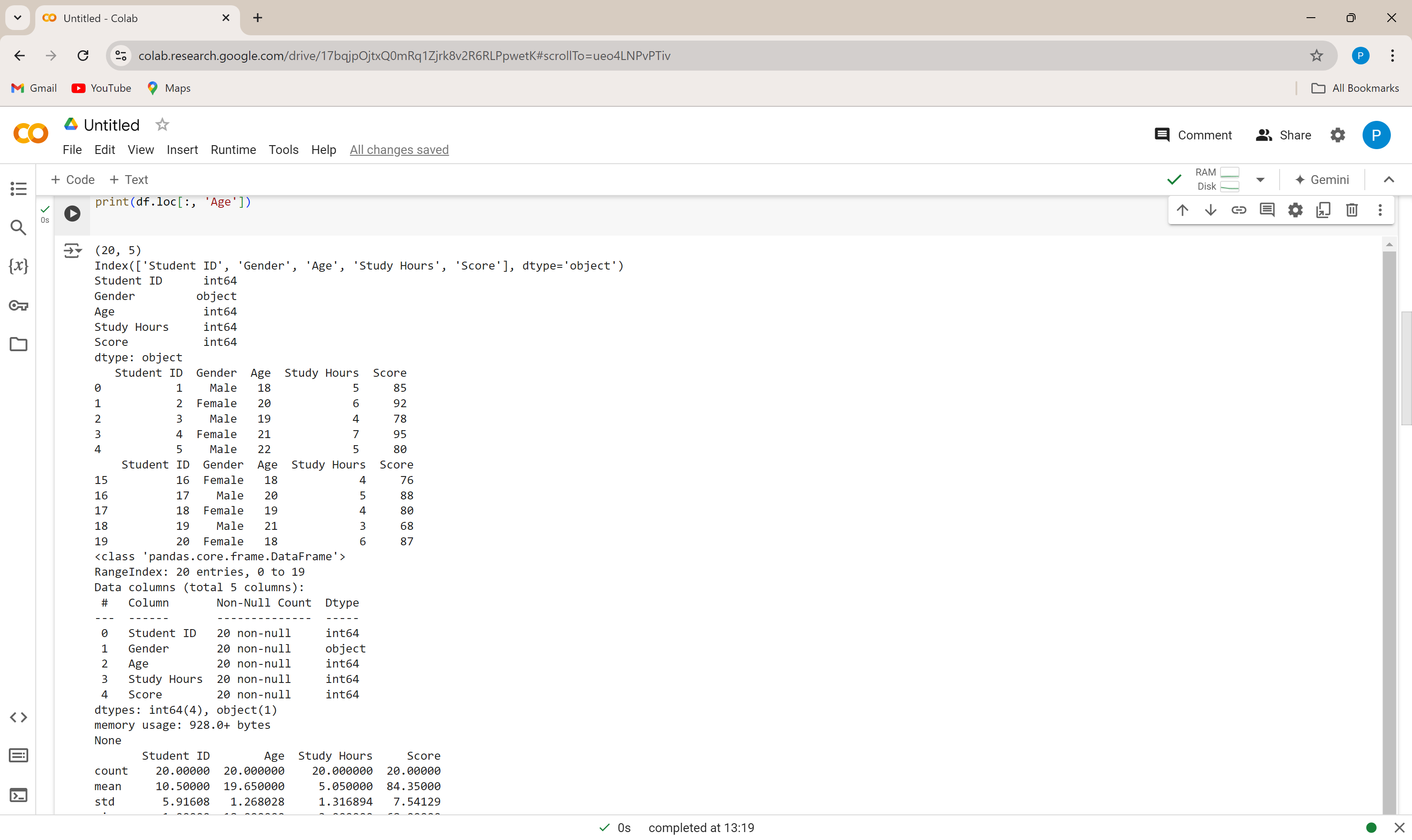
**·         Explore DataFrame attributes like shape, columns, dtypes, head, tail, info, describe.**

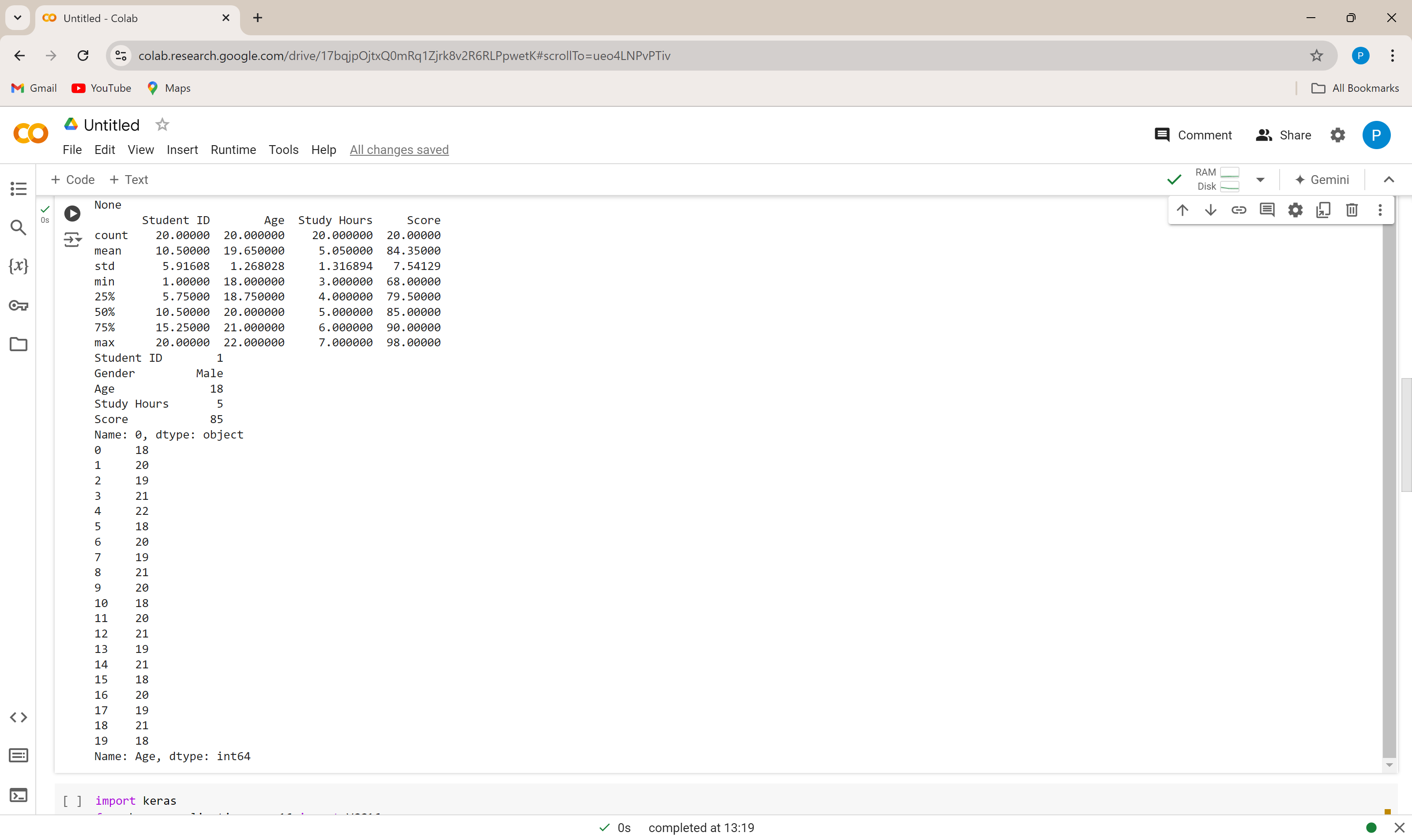
**·         Practice selecting columns and rows using different methods (indexing, slicing, loc, iloc).**

**CODE:**

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**OUTPUT:**

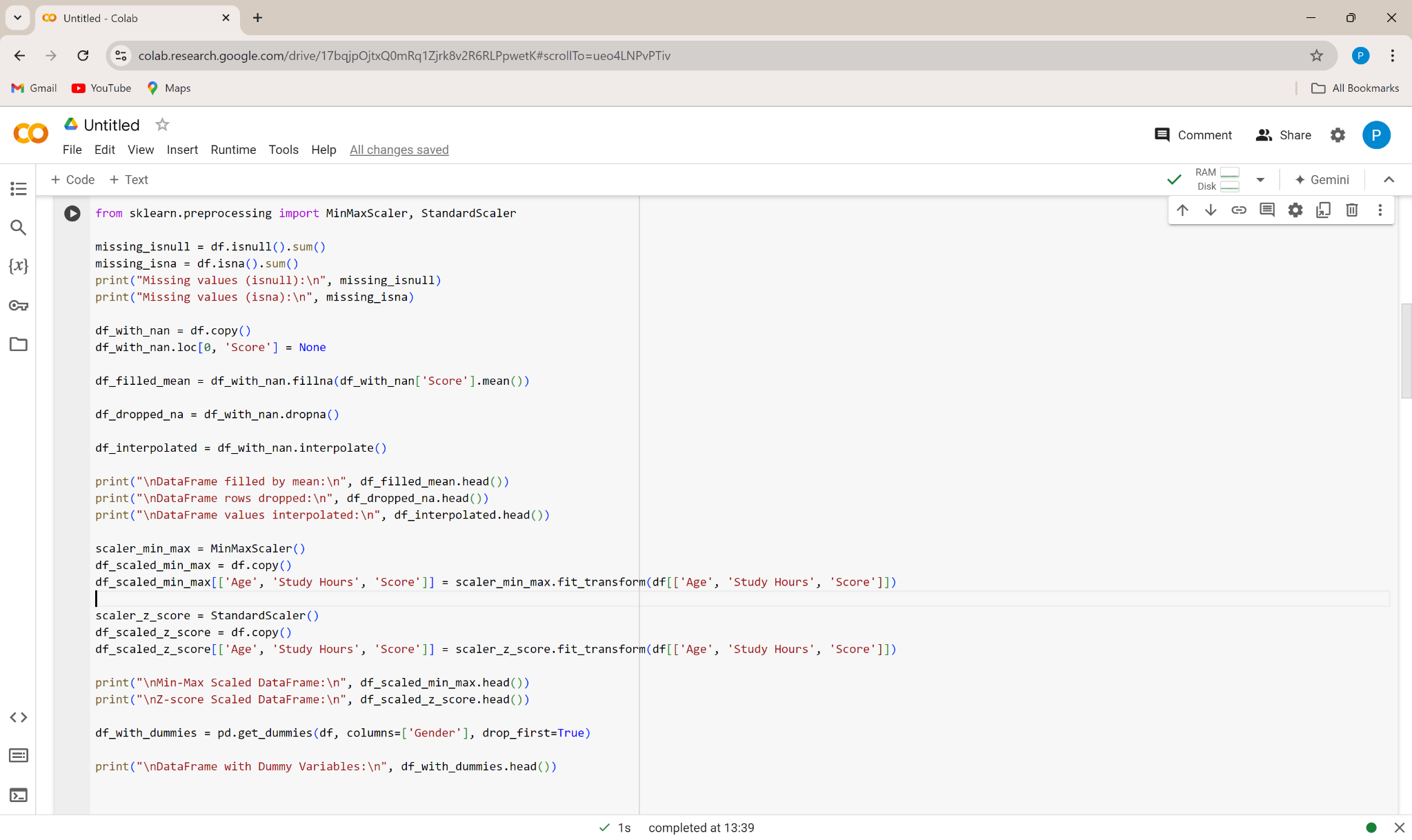
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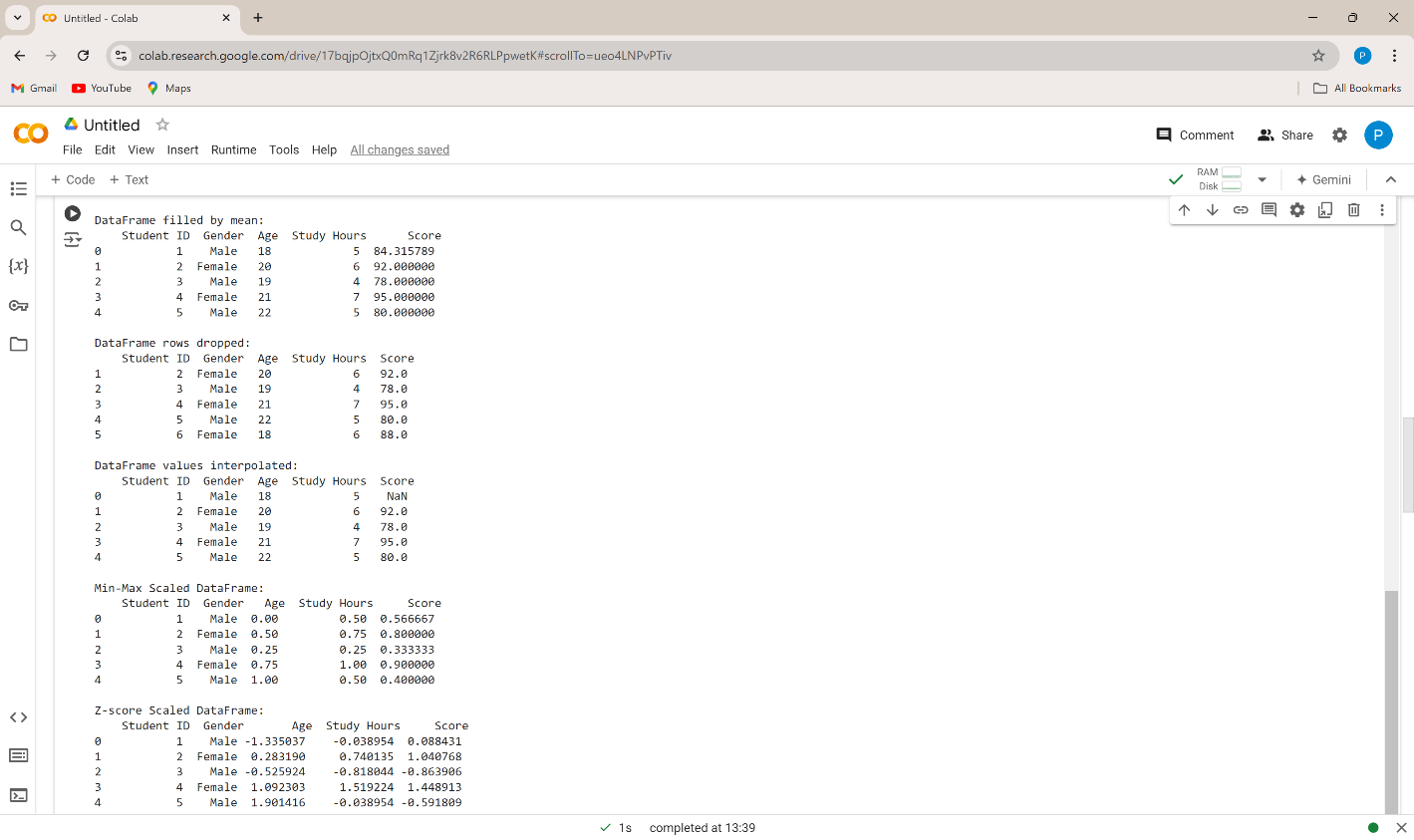
**Q2. Data Cleaning and Preparation**

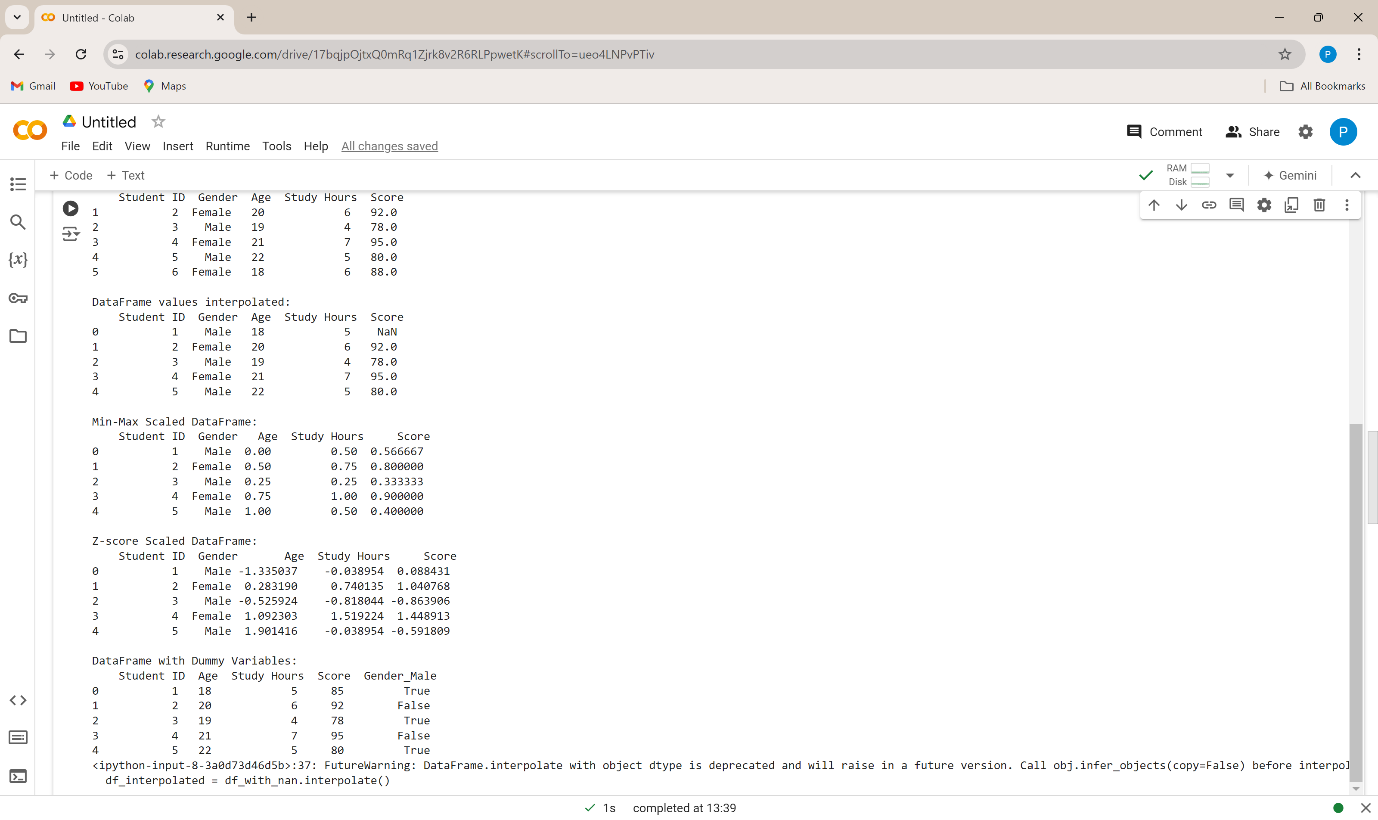
* **Identify missing values using isnull and isna.**
* **Handle missing values using fillna, dropna, interpolation.**
* **Apply scaling techniques (min-max, z-score) to numerical columns.**
* **Create dummy variables for categorical columns.**

**CODE:**

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**OUTPUT:**

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**Q3. Aggregation and Grouping:**

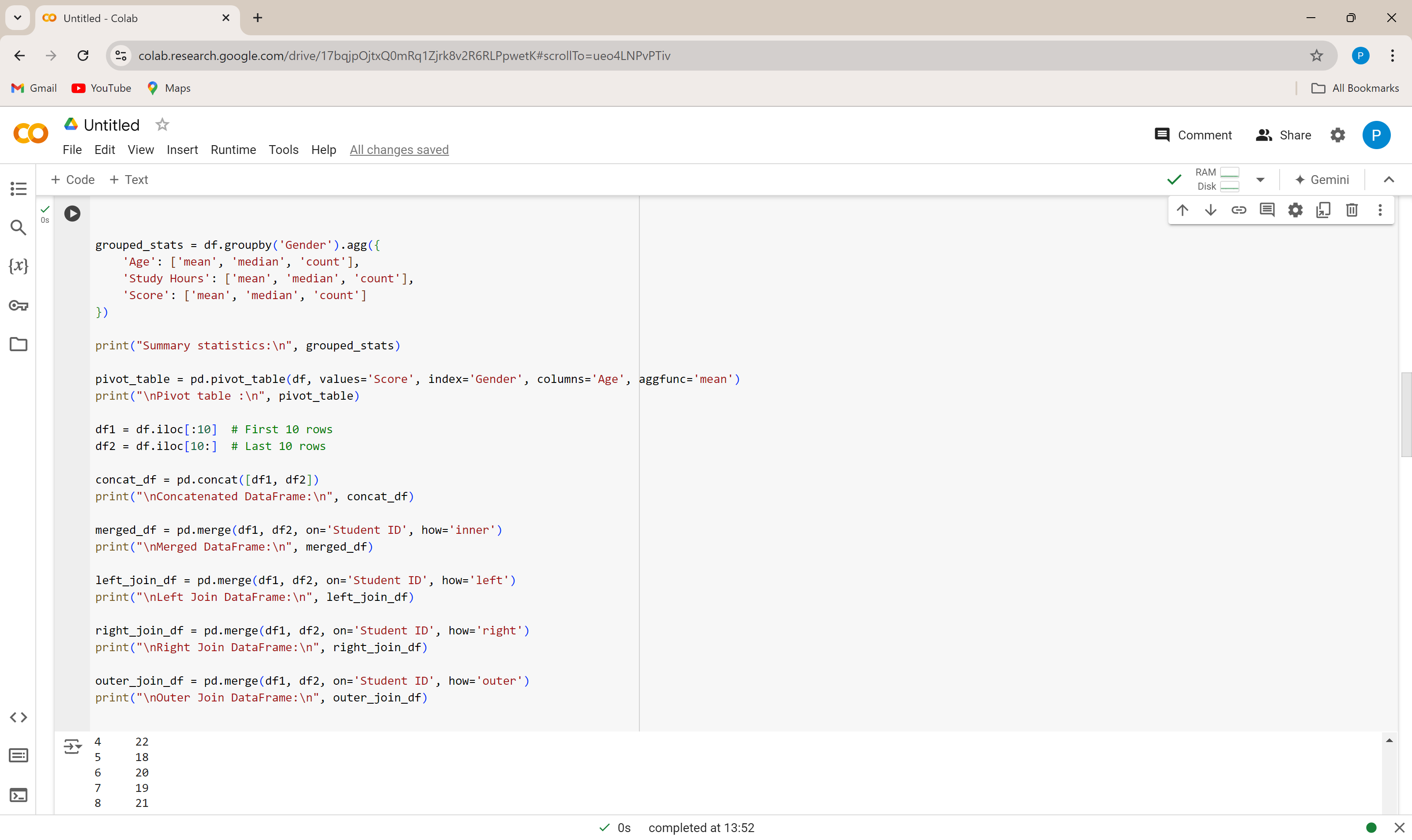
**Calculate summary statistics (mean, median, count, etc.) using groupby.**

**Create pivot tables for data summarization.**

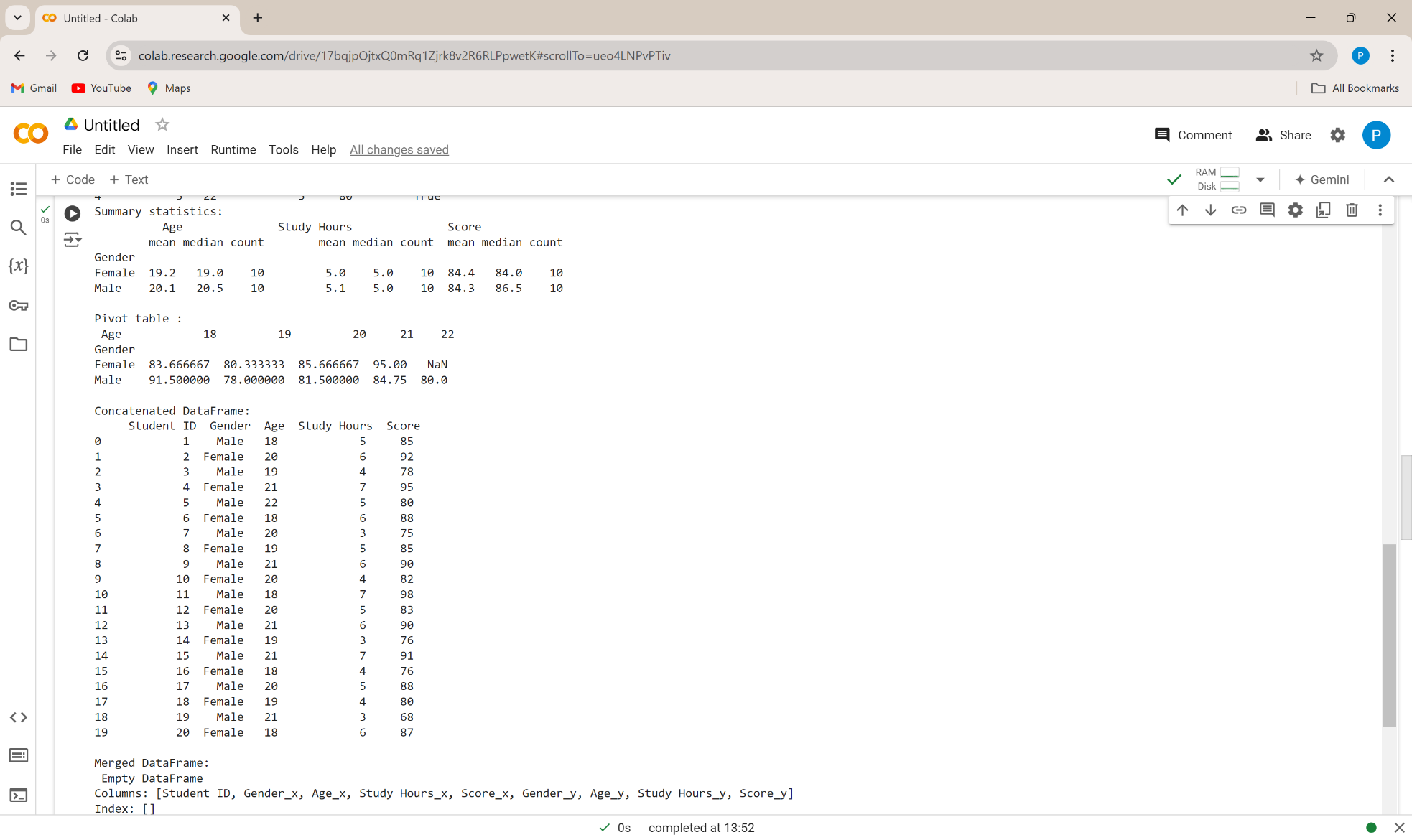
**Combine DataFrames using concat, merge, and join.**

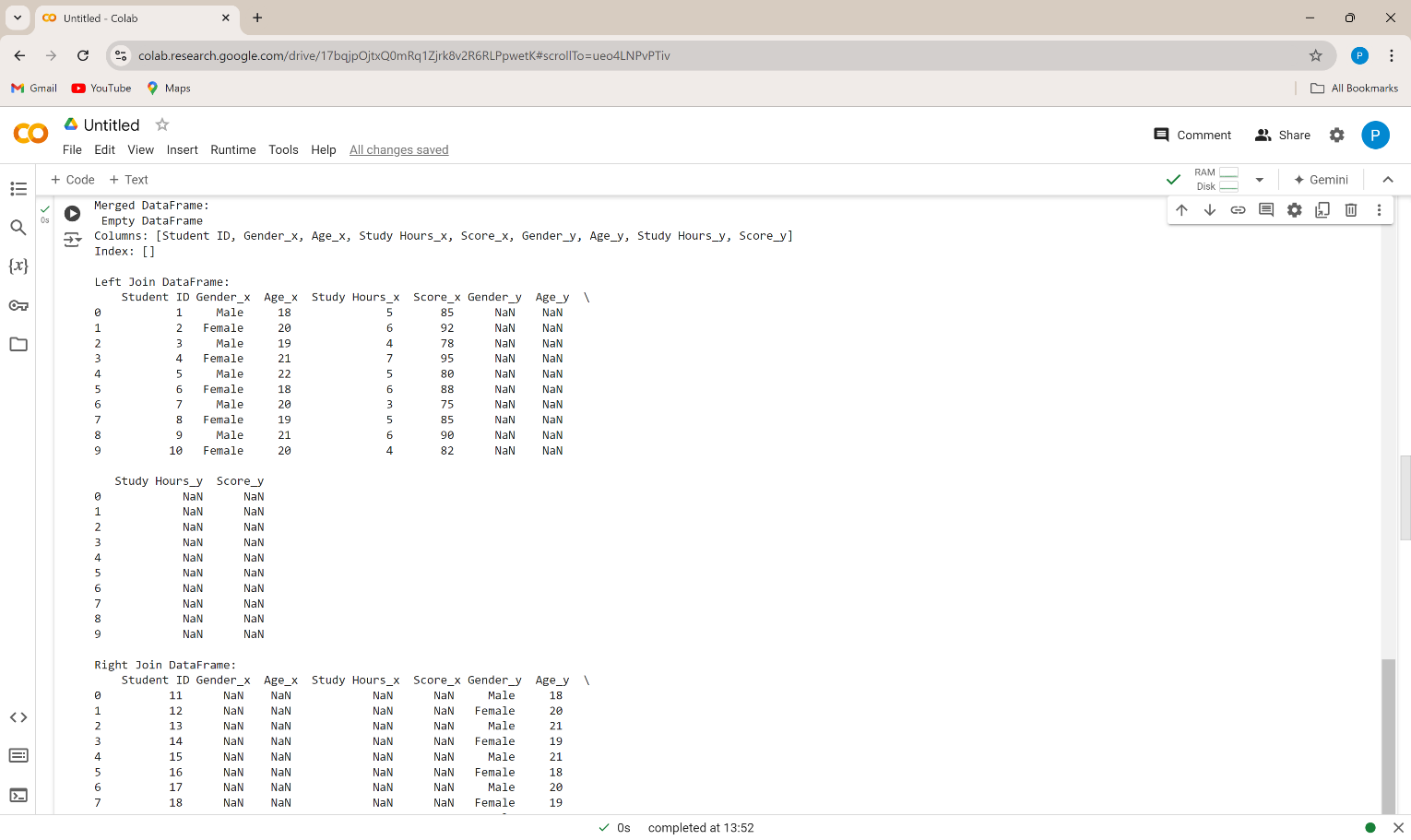
**Practice different join types (inner, outer, left, right).**

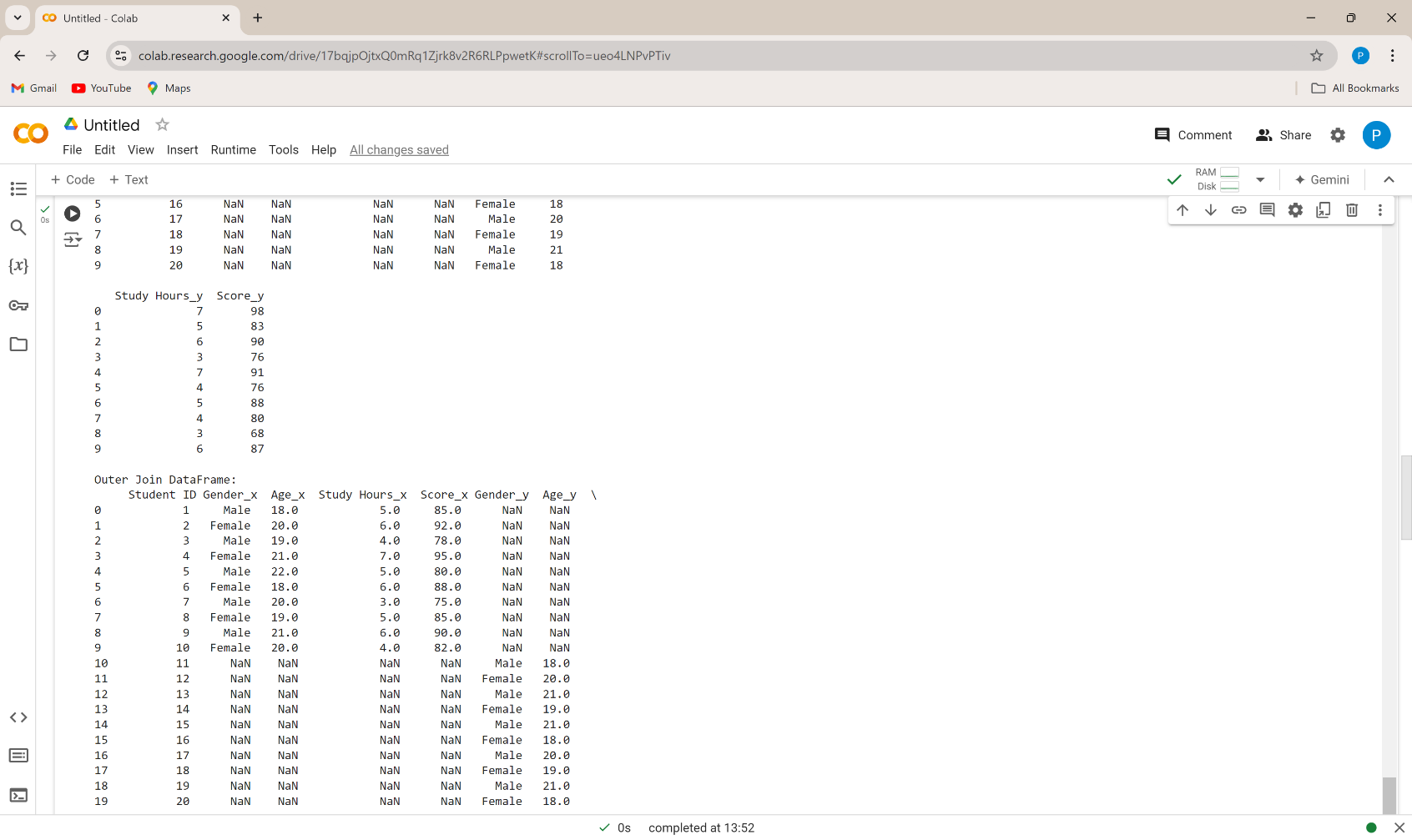
**CODE:**

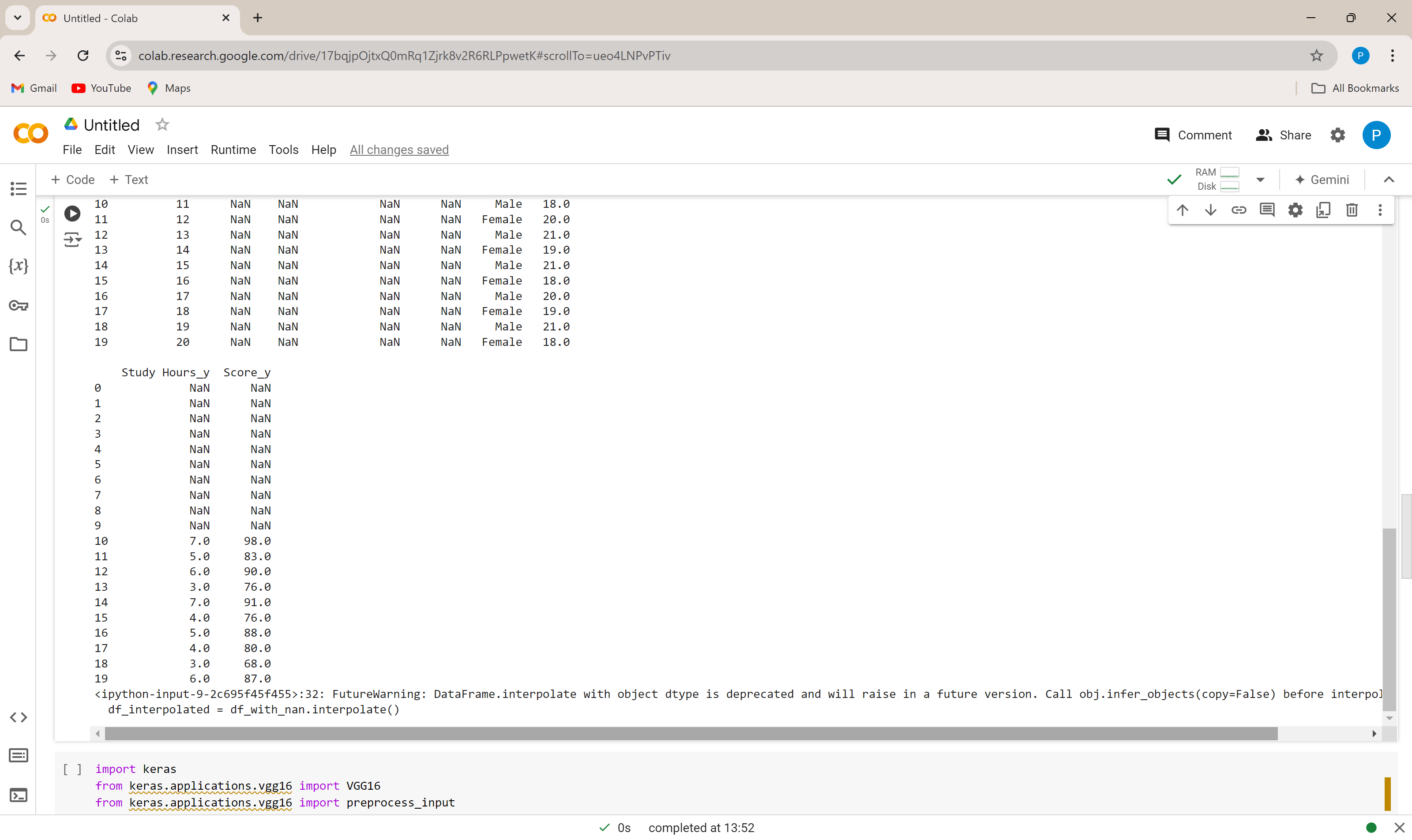
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**OUTPUT:**

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