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**Ain Shams University**  
**Faculty of Computer & Information Sciences**

**Computer Science Department**

**Data Science Project Documentation**

**Project Idea:**

**“Household Income Analysis”**



**Team Members:**

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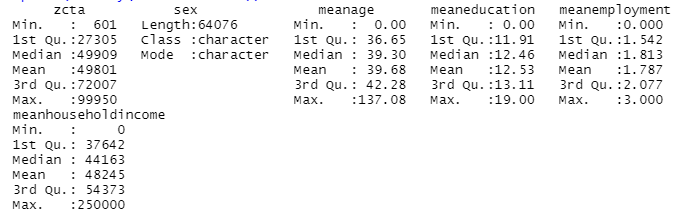
**1**

**Part #1:** “Review of Big Data Analytic Methods”

1. **Step # 1:** Retrieve and Clean Up Data using R

**1.1- Analyze the data:**

* **The screenshot from the R code.**



* Columns names: zcta , sex , meanage , meaneducation , meanemployment

**1.2- Number of rows in the zeta table**:

* 64076

**1.3- Are there any duplicate rows of data in the zeta table?**

* There is no duplicated rows of data.

**1.4- According to 1.3, no duplicated rows.**

**1.5- Saved the table, Including in the R code.**

**2**

1. **Step # 2:** Data Analysis in R

**2.1- Loaded the data, Including in the R code.**

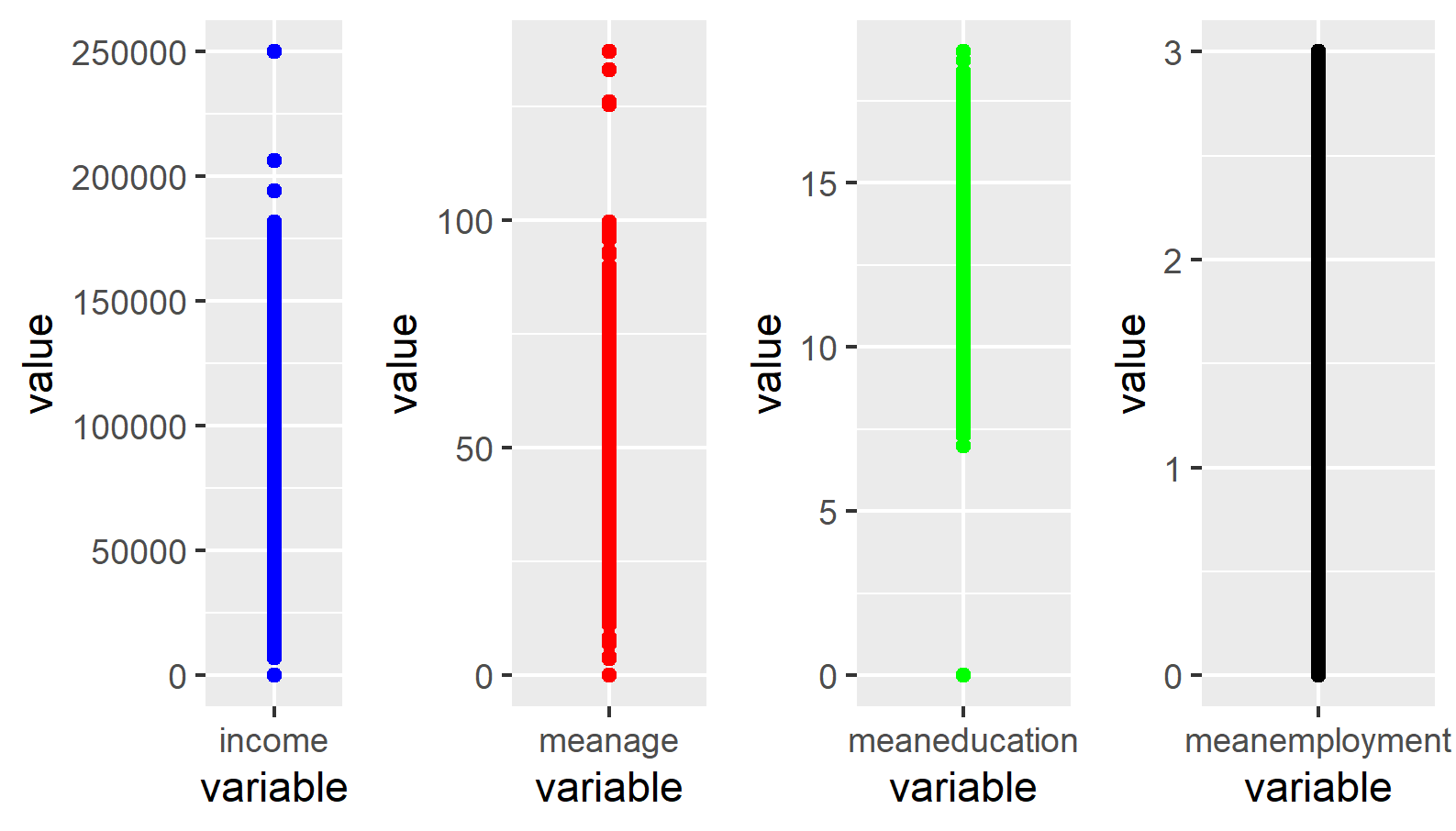
**2.2- Changed the column names, Including in the R code.**

**2.3- What are the mean and median average incomes?**

* Incomes column mean: 48245
* Incomes column median: 44163

**2.4- Plot a scatter plot of the data?**

* **The scatter plot from the R code.**



* **Do you have any outlier values?**

YES

* **What are these outlier values?**

In incomes and meanage columns in range more than 200,000 (>200,000) and less than 7,000 (<7,000) as shown in the plot.

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**2.5- Deleting the outlier values, Including in the R code.**

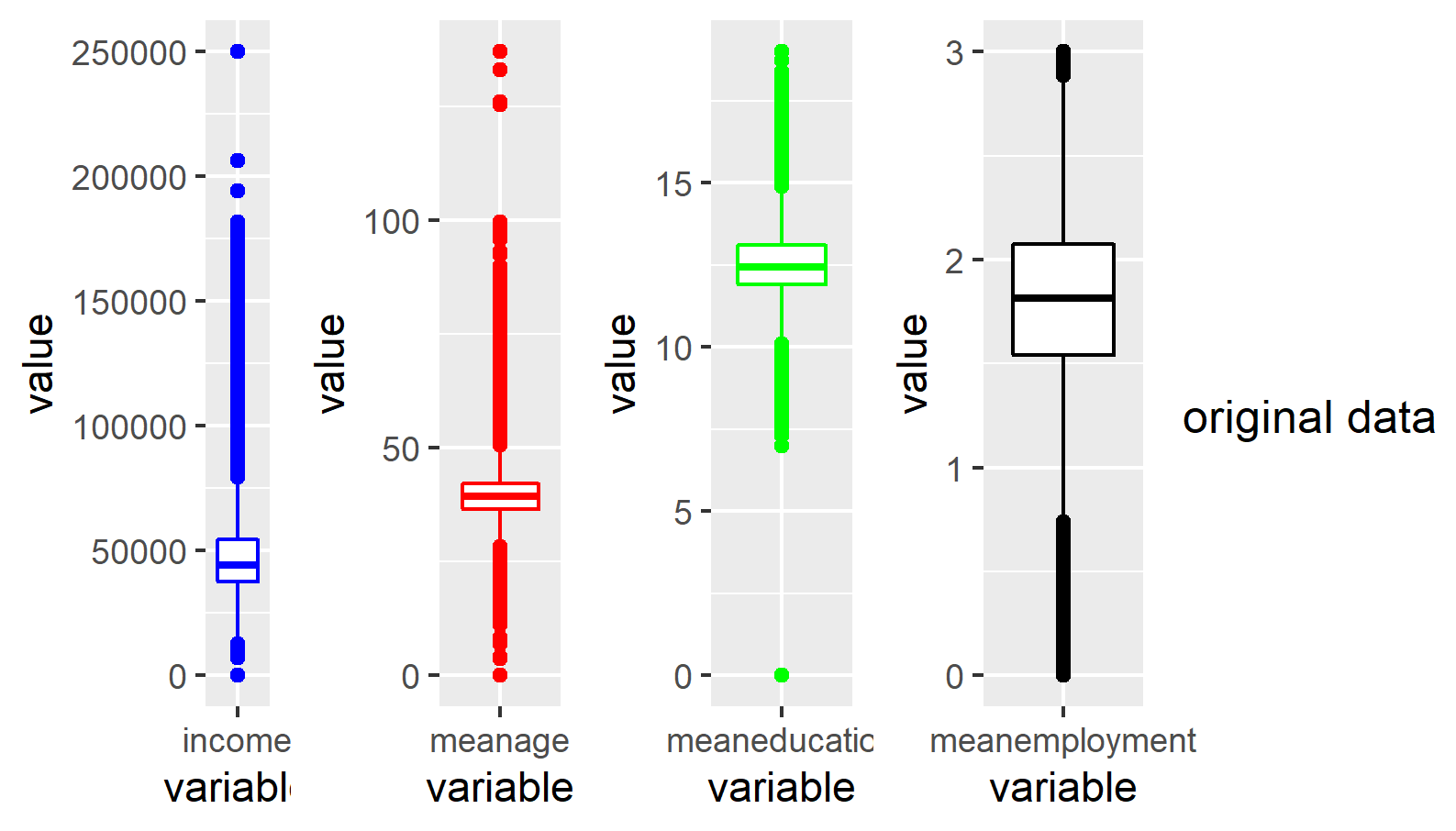
**2.6- The mean of the data:**

* The mean before deleting the outlier values: 48245.24
* The mean after deleting the outlier values: 48464.95

**3. Step # 3:** Visualize your data

**3.1- Create a box plot of the data?**

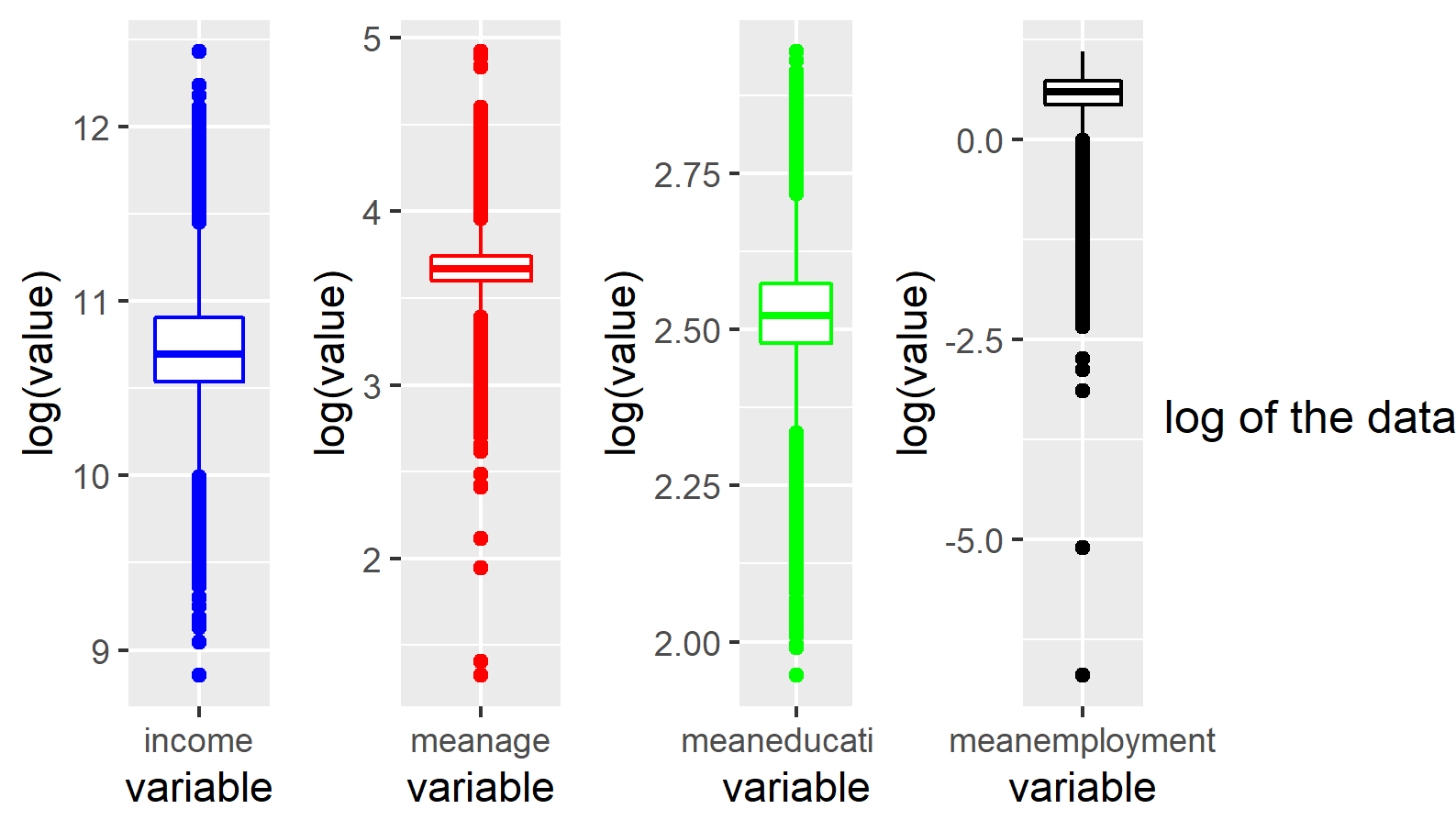
* **The screenshot from the R code.**



**4**

**3.2- Create a box plot of the data with the (log scale)?**

* **The screenshot from the R code.**



**3.3- What can you conclude from this data analysis/visualization?**

* In the last of the step #1 of data analysis/visualization, it’s important to do preprocessing for the data to study and clean it from any duplicated data and outlier values to help you in the next process such as (K-means clustering).

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