**Task 2: Population vs. Sample**

**Statistics often involve analyzing data from a group to gain meaningful insights. It is essential to understand the difference between a population and a sample in any statistical study.**

**1. Population**

**A population includes all members of a defined group that is being studied. It represents the complete dataset from which conclusions are drawn.**

**Examples:**

* **All families living in a city**
* **Every student in a university**
* **All employees in a company**

**In the given scenario:  
Population = *All families in the city***

**2. Sample**

**A sample is a smaller, manageable subset of the population selected for analysis. It is typically used when it is impractical or impossible to collect data from the entire population.**

**Examples:**

* **Surveying 200 students from a university**
* **Polling 1,000 citizens to predict election outcomes**
* **Evaluating 50 employees out of 1,000 for performance**

**In the given scenario:**

**Sample = *100 surveyed households***

**Key Differences Between Population and Sample**

| **Feature** | **Population** | **Sample** |
| --- | --- | --- |
| **Definition** | **The entire group being studied** | **A subset selected for study** |
| **Size** | **Large or complete dataset** | **Smaller, manageable group** |
| **Purpose** | **Represents the whole group** | **Estimates characteristics of the population** |
| **Example** | **All families in a city** | **100 households surveyed in the city** |

**Conclusion**

**Understanding the distinction between population and sample is fundamental in research and data analysis.**

* **A population refers to the entire group you want to study or draw conclusions about.**
* **A sample is a smaller group selected from the population, which is studied to make inferences about the whole.**