

Mini-project: Student Product Preference Analysis Using Sets

Total: 3 marks

Scenario

You are a Business Intelligence and Data Analytics trainee working as a junior market researcher. A small business wants to understand the technology products preferred by students so that it can decide which products to stock.

Collect data from at least 10 fellow students. Ask each student whether they are interested in buying laptops, smartphones or tablets. You should record unique identifiers of respondents (S01, S02, etc.) and their responses.

Task 1: Create and describe your sets

From your collected data, create:

L= students interested in laptops

S= students interested in smartphones

T= students interested in tablets

Then determine:

- The cardinality of each set.
- Whether each set is finite or infinite.
- Whether any of your sets are disjoint.
- Give one example of equivalent sets if any

Task 2: Apply set operations

Using your own data, calculate:

- a. $L \cup S$
- b. $L \cap S$
- c. $L - S$
- d. $S - L$

Then explain any one business insight obtained from your results.

Task 3: Apply Cartesian product

Ask your respondents which payment method they would prefer:

$P = \{\text{Cash, Mobile Money}\}$

Using the product set: $C = \{\text{Laptop, Smartphone, Tablet}\}$, calculate $C \times P$.

List all possible product-payment combinations and give one decision the business can make from the Cartesian product.

Task 4: Create a table in Excel or Google Sheets

Student ID	Laptop	Smartphone	Tablet	Preferred Payment
S01	Yes	Yes	No	Mobile Money

Note: Collect your own data and submit your own analysis.

Save all results in a document. Indicate your name and registration number.
Hand in a hard copy on 28th August, 2026.