

Computational Thinking Based Project

Topic: Auxiliaries to Trade

Objective: Students to apply computational thinking pillars to analyze, deconstruct, and optimize the "Auxiliaries to Trade" that support modern commerce. Students will step into the shoes of a Business Analyst to solve real-world logistical and commercial bottlenecks.

Choose ANY ONE option from the following three options:

Option 1: The Logistics & Warehousing Optimizer (Supply Chain Logistics)

The Scenario: A local organic farm-to-table business is losing 25% of its perishable produce due to delays in transportation, poor warehouse tracking, and lack of cold storage integration.

Task A (Decomposition): Break down the entire journey of an agricultural product from the farm to the consumer's table. List every single point where Transportation and Warehousing interact.

Task B (Pattern Recognition & Abstraction): Research and identify why supply chains usually fail (e.g., traffic, lack of real-time data, bad weather). Filter out irrelevant details and list the top 3 core variables that dictate successful storage and transit.

Task C (Algorithmic Design): Create a visual Flowchart (an algorithm) for the delivery driver and warehouse manager. It must include "If-Then" logic.

Example: IF warehouse temperature rises above 4°C → THEN trigger automated alert to maintenance and reroute incoming delivery truck to Backup Warehouse B.

Option 2: The Smart Risk Assessment System (Insurance & Banking)

The Scenario: A young entrepreneur wants to start an e-commerce store selling customized electronics but is terrified of the risks involved (theft in transit, cyber fraud, damaged inventory).

Task A (Decomposition): Categorize the risks the entrepreneur faces. Divide them into risks that can be mitigated by Banking services (e.g., secure payment gateways, credit lines) and those mitigated by Insurance (e.g., marine insurance, fire insurance).

Task B (Abstraction): Design a Risk Assessment Matrix (a table). Filter out minor worries and focus only on high-impact risks. Rate them based on Probability (Low/Medium/High) and Financial Impact.

Task C (Algorithmic Design): Develop a step-by-step Standard Operating Procedure (SOP) or a logical checklist that the entrepreneur must run through before dispatching any high-value order to ensure maximum financial security.

Option 3: The Ad-Budget Allocator (Advertising & Communication)

The Scenario: A homegrown sustainable clothing brand has a limited marketing budget of ₹50,000. They need to choose between print media, influencer marketing, and hyper-local billboards to maximize sales.

Task A (Decomposition & Pattern Recognition): Analyze the target audience (Gen Z and Millennials). Break down their daily media consumption habits. What patterns do you see in how they interact with advertisements?

Task B (Abstraction): Compare the three advertising mediums based only on two metrics: Cost-effectiveness and Audience Reach. Ignore non-essential factors.

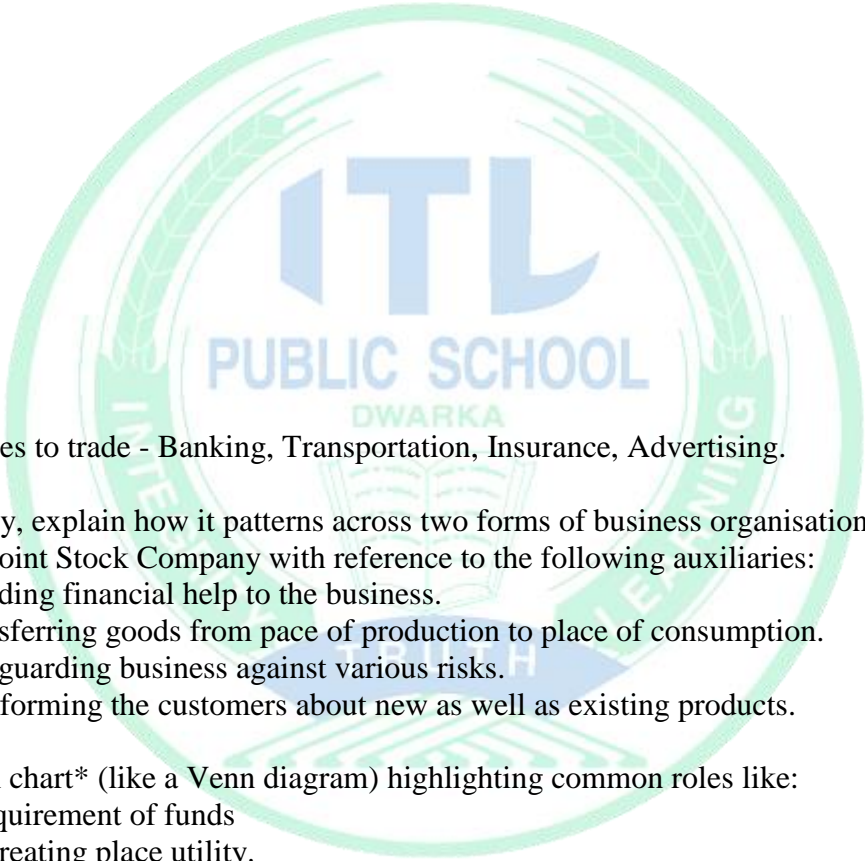
Task C (Algorithmic Design): Create a Decision Tree (a branched logical diagram) that the brand can use to allocate its budget.

Example: Is the target audience active on social media? → Yes: Allocate 60% to Instagram Ads. → No: Look at geographical location → Is it a metro city? → Yes: Use digital billboards.

Submission Guidelines:

The research report can be digital (a Canva presentation/PDF) or a neatly handwritten project of 6-8 pages. It must include:

Title Page: Project Name, Student Details.

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1. Select 4 auxiliaries to trade - Banking, Transportation, Insurance, Advertising.
 2. For each auxiliary, explain how it patterns across two forms of business organisations – Sole Proprietorship Vs Joint Stock Company with reference to the following auxiliaries:
 - a. Banking in providing financial help to the business.
 - b. Transport in transferring goods from place of production to place of consumption.
 - c. Insurance in safeguarding business against various risks.
 - d. Advertising in informing the customers about new as well as existing products.
 3. Create a *pattern chart* (like a Venn diagram) highlighting common roles like:
 - a. Banking – for requirement of funds
 - b. Transport – for creating place utility.
 - c. Insurance – for reducing risk for all.
 - d. Advertising – for providing information.
 4. Algorithm Thinking – Creating a handwritten or digital report in PDF form of 6 - 8 pages including diagrams, flowcharts, and examples.

The report must include student's name, class and section and roll no and can be done individually or in group of 3-4 students.