EXPERIMENT NO. 1

Identifying the Problem and write Problem Statements

Problem Statement

A problem statement in software development gives a developer the ability to understand clearly the issue and then architect a solution. Put simply, a problem statement clearly defines - in a concise but comprehensive way - a key business problem that needs to be solved.

In software development, the problem statement says, “What has to be done” for a project to succeed - to meet the needs of its stakeholders who are external to the development. When you do not have a well thought problem statement, you risk building a product that solves the wrong problem.

The problem statement is a tool for the stakeholders and developers to communicate in concise, plain language, about what tasks are being paid for, and what must be accomplished conceptually for the project to be a success. The problem statement forces all parties involved (including the development team’s leaders), to reach an agreement about what they are doing.

There are different methods for building a problem statement, but the most popular is breaking down the problem statement creating into the 5 W's.

1. **What**: Begin with a clear, brief statement of the problem. In one to three sentences, explain exactly what the issue is and how the problem affects the company.

2. **Where**: Explain what sector of your business the problem is affecting and whether it has triggered related problems.

3. **Who**: Name the stakeholders whose goals are impeded by the specific issue at

hand. 4. **When**: Lay out the timeframe during which the problem has existed.

5. **Why**: Articulate why this extant problem matters, and why it prevents the company from moving forward toward its goals. This item can include everything from financial costs to damaged morale to literal physical objects blocking a path.

6. **Proposed solution (optional)**: While the problem statement should spend more time identifying the factors surrounding the issue and making a case for taking it seriously, it may be appropriate to provide potential solutions as well. Consider whether it would be more helpful to list proposed solutions or simply provide questions for the team to think about during brainstorming sessions.

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Problem Statement Worksheet

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Problem Statement:

Grocery stores are experiencing issues with managing their product inventory efficiently, specifically identifying the most and least selling products.

	Meaning	Key Questions	Answers
WHO	(Who has the problem)	Who does the problem impact and involve?	• Grocery store owners and managers. • Customers who rely on these stores for their daily needs.
WHAT	(What is the Problem)	What does the problem impact? What are the drivers of the problem?	• The problem impacts the sales and inventory management of grocery stores. • Factors contributing to the problem include inaccurate forecasting, ineffective product placement, and lack

			of real-time sales data analysis.
WHY	Why is it important for the customers to address?	Why is solving the problem important to the stakeholders and the business?	• Solving the problem is crucial for customers to ensure they have access to the products they need. • Stakeholders, including store owners, benefit from optimized inventory management leading to increased revenue and customer satisfaction.
WHERE	(When and Where Does the Problem occur)	Where does the problem reside or have impact?	• The problem exists within grocery stores and their supply chain.
WHEN		When did the problem begin? When does the problem need to be solved by?	• The problem has likely been ongoing but has become more pressing due to increased competition and changing consumer behavior. • It needs to be solved promptly to prevent revenue loss and maintain customer loyalty.

HOW		How was the problem created? How can the problem be solved?	• The problem is created due to manual inventory management systems, lack of data analysis tools, and ineffective forecasting methods. • Implementing a software solution that automates inventory management, provides real-time sales data analysis, and offers predictive analytics can address the problem effectively.

What are the key issues you are trying to address?? Why is it important?	Who is it a problem for?	What social or cultural factors shape this problem?	Is it worth the investment? How?
1. Inefficient inventory management leading to stockouts and overstocking. 2. Inaccurate sales forecasting resulting in	1. Grocery store owners and managers. 2. Customers who may face inconvenience due to stockouts or limited product	1. Changing consumer preferences and shopping habits influence product demand and sales patterns.	Investing in a software solution for inventory management and sales analysis can yield significant benefits: • Improved operational efficiency through automated processes.

missed revenue opportunities and excess inventory. 3. Poor visibility into product performance, making it challenging to identify high and low-selling items. 4. Lack of real-time data analysis tools hindering decision-making processes. **Importance:** Efficiently managing inventory and optimizing product sales are crucial for the profitability and sustainability of grocery stores. Addressing these issues ensures that stores can meet customer demand effectively, minimize wastage, and maximize revenue potential.	availability.	2. Cultural factors such as seasonal variations in consumption may impact product sales.	• Enhanced customer satisfaction by ensuring product availability. • Increased revenue through better inventory optimization and sales forecasting. • Long-term cost savings by reducing excess inventory and minimizing wastage. Overall, the investment in a software solution is justified by the potential for increased profitability, improved customer experience, and sustainable business growth.

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