**Ideation Phase**

**Defining the Problem Statements**

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| **Project Name** | **Big Data Analytics with IBM Cloud Database** |

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**Phase 1: Problem Definition and Design Thinking:**

**Problem Definition:**

Problem definition is the first step in the design thinking process, which involves identifying and articulating a clear and concise statement of the issue or challenge that needs to be addressed. It is a critical phase because a well-defined problem serves as the foundation for the entire design thinking process.

Here are key elements of a well-defined problem:

**1. User-Centered:**

The problem statement should focus on the needs, pain points, and aspirations of the end-users or stakeholders who are affected by the problem. It should empathize with their experiences and perspectives.

**2. Actionable**:

The problem should be framed in a way that suggests it can be solved or improved through creative thinking and innovation. It should avoid vague or unsolvable issues.

**3. Specific and Narrow:**

A problem statement should be specific and focused. It should pinpoint a particular aspect of the challenge rather than addressing it in a broad or generic manner.

**4. Descriptive:**

It should describe the current situation or context, highlighting what is not working or what needs improvement. This helps in understanding the problem's scope and impact.

**5. Avoid Prescriptive Language**:

Avoid suggesting solutions or making assumptions about the cause of the problem at this stage. Instead, focus on describing the problem itself.

**6. Measurable**:

If possible, include metrics or indicators that can be used to measure the problem's severity or impact. This can help in quantifying the problem and tracking progress.

**7. Contextual:**

Consider the broader context, including social, cultural, economic, and technological factors, that might influence or relate to the problem.

Example Problem Statement:

Problem:

"Many commuters in our city spend hours stuck in traffic every day, leading to frustration, wasted time, and environmental pollution."

**Design Thinking:**

Once the problem is well-defined, design thinking is a problem-solving methodology that involves a structured, human-centered approach to generating innovative solutions. It typically consists of the following stages:

1. **Empathize:**

In this stage, teams engage in activities such as user interviews, observations, and surveys to deeply understand the experiences and needs of the people affected by the problem. The goal is to gain empathy and insights into their perspectives.

**2. Define:**

Building on the problem definition, this stage involves synthesizing the insights gained during the empathize stage to create a specific and actionable problem statement. It may involve reframing the problem based on the user's viewpoint.

**3. Ideate:**

This is the creative phase where teams brainstorm ideas without judgment. The goal is to generate a wide range of potential solutions to the defined problem. Techniques such as brainstorming, mind mapping, and ideation sessions are used.

**4. Prototype**:

In this stage, teams select the most promising ideas and create low-fidelity prototypes or representations of those ideas. These prototypes are used to quickly test and iterate on potential solutions.

**5. Test:**

Prototypes are tested with users or stakeholders to gather feedback and insights. This iterative process helps refine and improve the solutions based on real-world user reactions and needs.

**6. Implement**:

Once a viable solution is identified and refined through testing, it is ready for implementation. This may involve scaling up the solution and integrating it into the target environment.

**7. Iterate**:

Design thinking is an iterative process, and solutions are continuously refined based on ongoing feedback and evolving user needs. The cycle may restart if new challenges or opportunities arise.

Design thinking encourages a collaborative, user-centric, and iterative approach to problem-solving, ultimately leading to innovative and effective solutions that better meet the needs of the people involved. It is a flexible framework that can be applied to a wide range of challenges, from product design to process improvement to addressing complex social issues.

**Conclusion:**

In conclusion, developing a deep understanding of our users in the context of big data analytics with cloud databases is crucial for the success of our project. By empathizing with data analysts, database administrators, and business stakeholders, we can address their specific needs and pain points. This user-centric approach will guide us in creating solutions that simplify data management, enhance query performance, and expedite valuable insights. It also highlights the importance of user-friendly interfaces, robust documentation, and staying attuned to external influences such as changing data regulations. Ultimately, this empathy map canvas serves as a valuable tool to ensure our project aligns with the user's journey and delivers a more satisfying and effective experience.