\*\*Section Title: Insights for the TD Repayment Framework\*\*

\*\*Introduction:\*\*

In this section, we explore the insights shared by participants regarding their expectations for the Technical Debt (TD) repayment framework. Participants provided valuable suggestions and considerations that can guide the development of a comprehensive framework for managing and repaying TD in software prototypes.

\*\*Subsection 1: Providing Advice and Structured Development Practices\*\*

\*\*Participant Insights:\*\*

Many participants emphasized the importance of providing advice and structured development practices in the framework.

- \*\*Participant 25 (Mabira Conrad):\*\* Mabira suggested offering advice, blogs, and structured development practices to minimize TD.

- \*\*Participant 27 (Muganga Charles):\*\* Charles highlighted the significance of a framework that balances feature delivery and TD management.

\*\*Discussion:\*\*

Participants' insights stress the need for practical guidance and best practices within the TD repayment framework. Providing advice and structured development practices can assist early development teams in effectively managing TD and producing high-quality prototypes.

\*\*Subsection 2: Emphasizing Clear Project Structure and Accessibility\*\*

\*\*Participant Insights:\*\*

Some participants mentioned the importance of maintaining a clear project structure for easier debugging and problem-solving.

- \*\*Participant 25 (Mabira Conrad):\*\* Mabira recommended emphasizing a clear project structure.

- \*\*Participant 20 (Hassan):\*\* Hassan stressed the importance of accessibility in guidelines.

\*\*Discussion:\*\*

Clear project structures and accessibility-enhancing features within the framework can aid developers in navigating their prototypes and identifying areas requiring TD repayment more efficiently.

\*\*Subsection 3: Visual Aids and Practical Examples\*\*

\*\*Participant Insights:\*\*

Participants highlighted the significance of visual aids and practical examples within the framework.

- \*\*Participant 25 (Mabira Conrad):\*\* Mabira suggested providing visual aids and practical examples to facilitate understanding and application of best practices.

- \*\*Participant 28 (Sarah Nsereko):\*\* Sarah mentioned the value of learning tools and proper documentation.

\*\*Discussion:\*\*

Visual aids and practical examples can serve as valuable learning tools for early development teams. By incorporating these elements into the framework, developers can gain a deeper understanding of TD concepts and how to apply them effectively.

\*\*Subsection 4: Team Building and Realistic Planning\*\*

\*\*Participant Insights:\*\*

Participants emphasized the importance of team building and realistic planning in the framework.

- \*\*Participant 6 (Arnold Rukutatana):\*\* Arnold highlighted the need for team building.

- \*\*Participant 28 (Sarah Nsereko):\*\* Sarah mentioned the significance of realistic planning.

\*\*Discussion:\*\*

Team building and realistic planning can contribute to a collaborative and well-organized approach to TD repayment. Including guidance on these aspects in the framework can enhance its effectiveness.

\*\*Subsection 5: Continuous Vigilance and Adaptation\*\*

\*\*Participant Insights:\*\*

Continuous vigilance and adaptation were suggested by participants as important aspects to consider within the framework.

- \*\*Participant 27 (Muganga Charles):\*\* Charles emphasized the need for continuous vigilance and adaptation.

- \*\*Participant 28 (Sarah Nsereko):\*\* Sarah pointed out the importance of step-by-step guides and continuous adaptation.

\*\*Discussion:\*\*

The insights provided by participants highlight the dynamic nature of TD management. The framework should encourage continuous vigilance and adaptation to evolving project needs and challenges.

\*\*Conclusion:\*\*

Participants have offered valuable insights regarding their expectations for the TD repayment framework. These insights underscore the importance of providing advice, structured development practices, clear project structures, visual aids, practical examples, team building, realistic planning, continuous vigilance, and adaptation. Incorporating these considerations into the framework can enhance its effectiveness in guiding early development teams in managing and repaying TD in software prototypes.

\*\*Relating to the Overall Research Objectives:\*\*

The insights shared by participants align with the research objectives. They contribute to the development of a framework for validating TD metrics (SO2) by highlighting the need for practical guidance and learning aids. Additionally, these insights support the comparative evaluation of the TD framework (SO3) by emphasizing the importance of continuous adaptation and team collaboration.

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This section discusses the insights provided by participants regarding their expectations for the Technical Debt (TD) repayment framework. It emphasizes the need for practical guidance, clear project structures, visual aids, team building, and continuous adaptation. These insights can guide the development of a comprehensive framework for managing and repaying TD in software prototypes, aligning with your research objectives.

\*\*Section Title: Identifying Discrepancies and Contradictions in Participant Responses\*\*

\*\*Introduction:\*\*

This section aims to identify discrepancies and contradictions within the data provided by participants regarding their experiences and perspectives on technical debt (TD) in software prototype development. By highlighting these disparities, we can better understand the challenges faced by early development teams and how this research aims to address them.

\*\*Subsection 1: Varied Definitions of Technical Debt\*\*

\*\*Identified Discrepancies:\*\*

Participants across different roles and contexts provided varying definitions of TD. While some focused on code-related issues, others considered factors like project management challenges and documentation gaps as forms of TD.

\*\*Research Alignment:\*\*

This research recognizes the diverse interpretations of TD and aims to address this by developing a comprehensive framework that encompasses multiple dimensions of TD. By acknowledging these variations, the framework can offer a more holistic approach to TD identification and management.

\*\*Subsection 2: Prioritization of TD\*\*

\*\*Identified Discrepancies:\*\*

Participants differed in their approaches to prioritizing TD. Some emphasized addressing high-impact issues, while others favored a feature-by-feature resolution approach.

\*\*Research Alignment:\*\*

The research acknowledges the variation in prioritization strategies and seeks to develop guidelines within the framework that cater to different prioritization preferences. This way, early development teams can choose an approach that aligns with their specific project needs.

\*\*Subsection 3: Awareness and Monitoring of TD\*\*

\*\*Identified Discrepancies:\*\*

Participants varied in their levels of awareness and monitoring of TD. Some were proactive in detecting and addressing TD, while others acknowledged their limited TD awareness.

\*\*Research Alignment:\*\*

To address these discrepancies, the research aims to incorporate educational components into the framework. This includes providing resources and guidance for enhancing TD awareness and monitoring practices among early development teams.

\*\*Subsection 4: Tools and Metrics for TD Measurement\*\*

\*\*Identified Discrepancies:\*\*

Participants had diverse tool preferences and approaches to TD measurement. Some actively used specific tools, while others relied on manual methods. Metric preferences also varied.

\*\*Research Alignment:\*\*

To address these contradictions, the research intends to offer a range of TD measurement options within the framework. This allows teams to choose tools and metrics that best suit their development context.

\*\*Subsection 5: Motivations for TD Repayment\*\*

\*\*Identified Discrepancies:\*\*

Participants had differing motivations for repaying TD, including career advancement, user satisfaction, and project deadlines.

\*\*Research Alignment:\*\*

The research recognizes these diverse motivations and aims to provide a flexible framework that allows teams to align TD repayment with their specific goals and incentives.

\*\*Conclusion:\*\*

Discrepancies and contradictions in participant responses highlight the complexity of TD in early development teams. This research acknowledges these variations and aims to develop a versatile framework that accommodates different interpretations, prioritization strategies, awareness levels, tool preferences, and motivations. By addressing these discrepancies, the framework can better serve the diverse needs of early development teams and facilitate effective TD management.

\*\*Relating to the Overall Research Objectives:\*\*

This analysis aligns with the research objectives by demonstrating the need for a flexible and comprehensive TD framework. By recognizing and addressing discrepancies, the research aims to provide a practical tool that can adapt to the diverse challenges faced by early development teams.

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This section identifies discrepancies and contradictions in participant responses regarding their experiences and perspectives on technical debt (TD) in software prototype development. It emphasizes the diverse interpretations, prioritization strategies, awareness levels, tool preferences, and motivations related to TD. The research aims to address these discrepancies by developing a versatile TD framework that caters to the specific needs of early development teams, aligning with the research objectives.

\*\*Analysis and Discussion: Impact of TD Measurement on Early Repayment\*\*

\*\*Introduction:\*\*

This analysis focuses on how the measurement of technical debt (TD) in participant responses influences the early repayment of TD in two distinct contexts: final year projects and startups. By examining participant perspectives, we aim to understand how the act of measuring TD affects the decision-making process and the subsequent efforts to repay TD.

\*\*Measurement Influences on Early Repayment in Final Year Projects:\*\*

\*\*Finding 1: Increased Awareness through Measurement\*\*

Participants engaged in final year projects often mentioned that measuring TD increased their awareness of existing issues. The act of quantifying TD through metrics or tools highlighted areas of concern that might have otherwise gone unnoticed.

\*\*Discussion:\*\*

In the context of final year projects, where students are often under tight deadlines and focused on delivering a functional product, measurement serves as a crucial awakening. It prompts students to recognize that TD exists within their projects, motivating them to consider early repayment. This aligns with the research objective (SO3) of evaluating the TD framework's impact, as it demonstrates how measurement can drive proactive debt management.

\*\*Finding 2: Prioritization and Action\*\*

Several participants in final year projects mentioned that TD measurement helped them prioritize which issues to address first. Quantifiable metrics allowed them to identify high-impact problems, prompting them to take action to resolve these issues promptly.

\*\*Discussion:\*\*

In the academic setting of final year projects, where students often have limited experience, having a clear understanding of which aspects of TD to tackle first is invaluable. Measurement provides a basis for informed decision-making, aligning with the research objective (SO1) of identifying key metrics for measuring TD. By addressing high-impact issues early, students aim to improve the overall quality of their projects.

\*\*Measurement Influences on Early Repayment in Startups:\*\*

\*\*Finding 3: Business Implications and User Satisfaction\*\*

Participants working in startups highlighted that TD measurement often revolved around business implications and user satisfaction. They stressed that quantifying TD helped them understand how technical issues could directly impact the user experience and, consequently, the success of their startup.

\*\*Discussion:\*\*

In startup environments, where financial resources are limited, measurement takes on a practical significance. It aligns with the research objective (SO2) of developing a framework for validating identified metrics. By measuring the impact of TD on user satisfaction and business outcomes, startups can make informed decisions about early repayment, recognizing that delayed repayment could result in lost customers and revenue.

\*\*Finding 4: Motivation for Continuous Improvement\*\*

Startup participants mentioned that the measurement of TD served as a motivator for continuous improvement. They emphasized that tracking metrics over time allowed them to see progress and the positive impact of TD repayment on their product and business.

\*\*Discussion:\*\*

This finding aligns with the research objective (SO3) of conducting a comparative evaluation of the TD framework. In startups, where agility and adaptability are crucial, measurement serves as a feedback loop. It encourages teams to continuously address TD, knowing that it directly contributes to their product's success. The measurement becomes an essential part of their decision-making and development processes.

\*\*Conclusion:\*\*

In both final year projects and startups, the act of measuring TD plays a significant role in early repayment. For students in academic settings, measurement increases awareness and aids in prioritization, fostering proactive debt management. In startups, it aligns with business goals, encourages continuous improvement, and motivates timely repayment. These findings underscore the importance of including measurement tools and practices within the proposed TD framework, as they serve as catalysts for early debt repayment.

\*\*Relating to the Overall Research Objectives:\*\*

This analysis directly relates to the research objectives by highlighting the impact of TD measurement on early repayment in different contexts. It demonstrates how the TD framework, aligned with SO1, SO2, and SO3, can provide guidance and support for incorporating measurement practices that drive timely debt repayment.