

AI INTERVIEWER PROJECT PROPOSAL

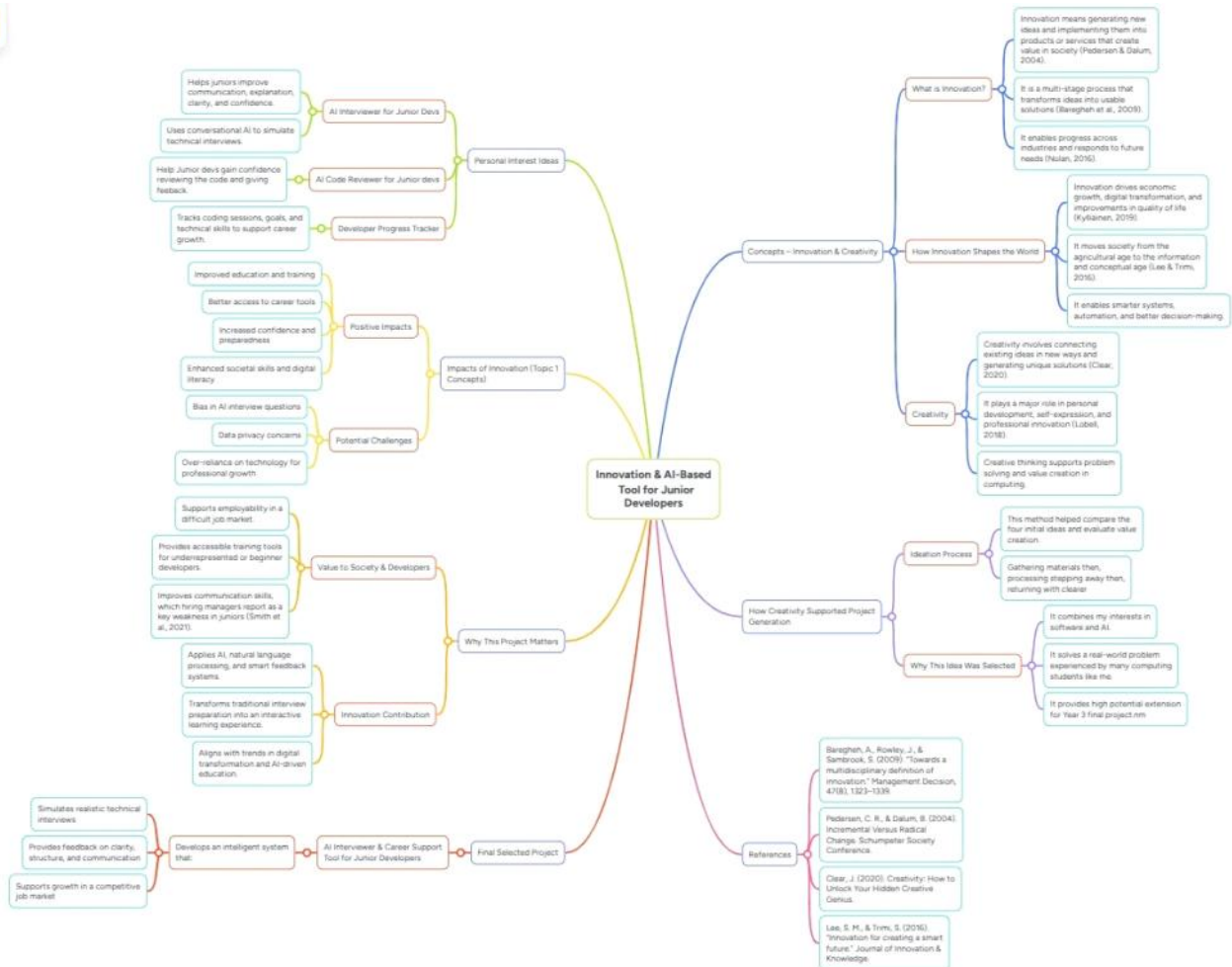
Prepared by: David Lopez Rodriguez
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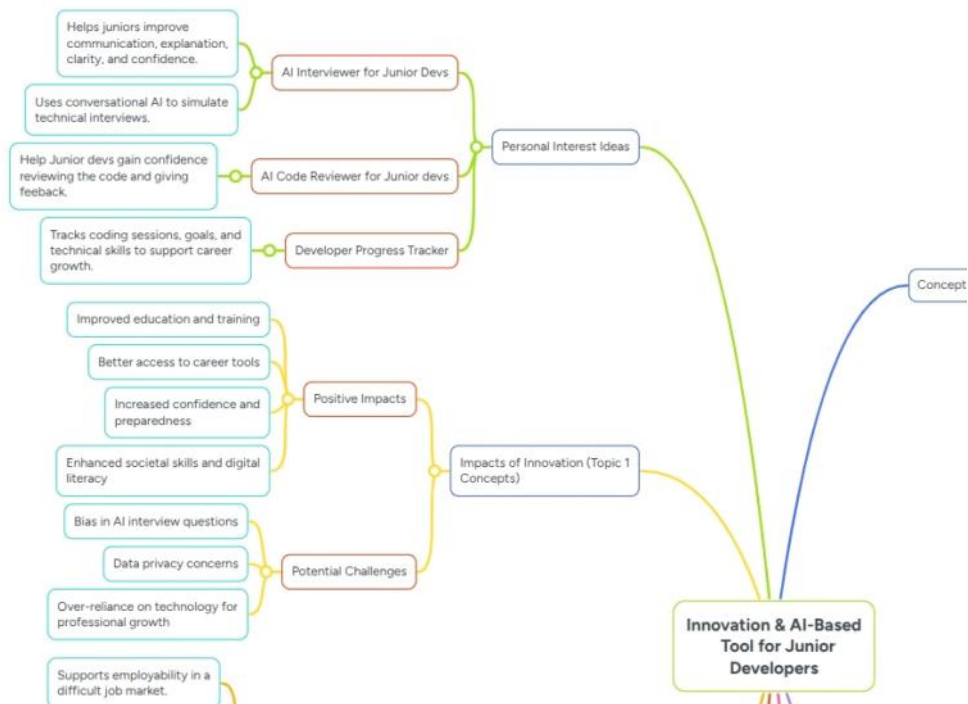
Mindmap view link

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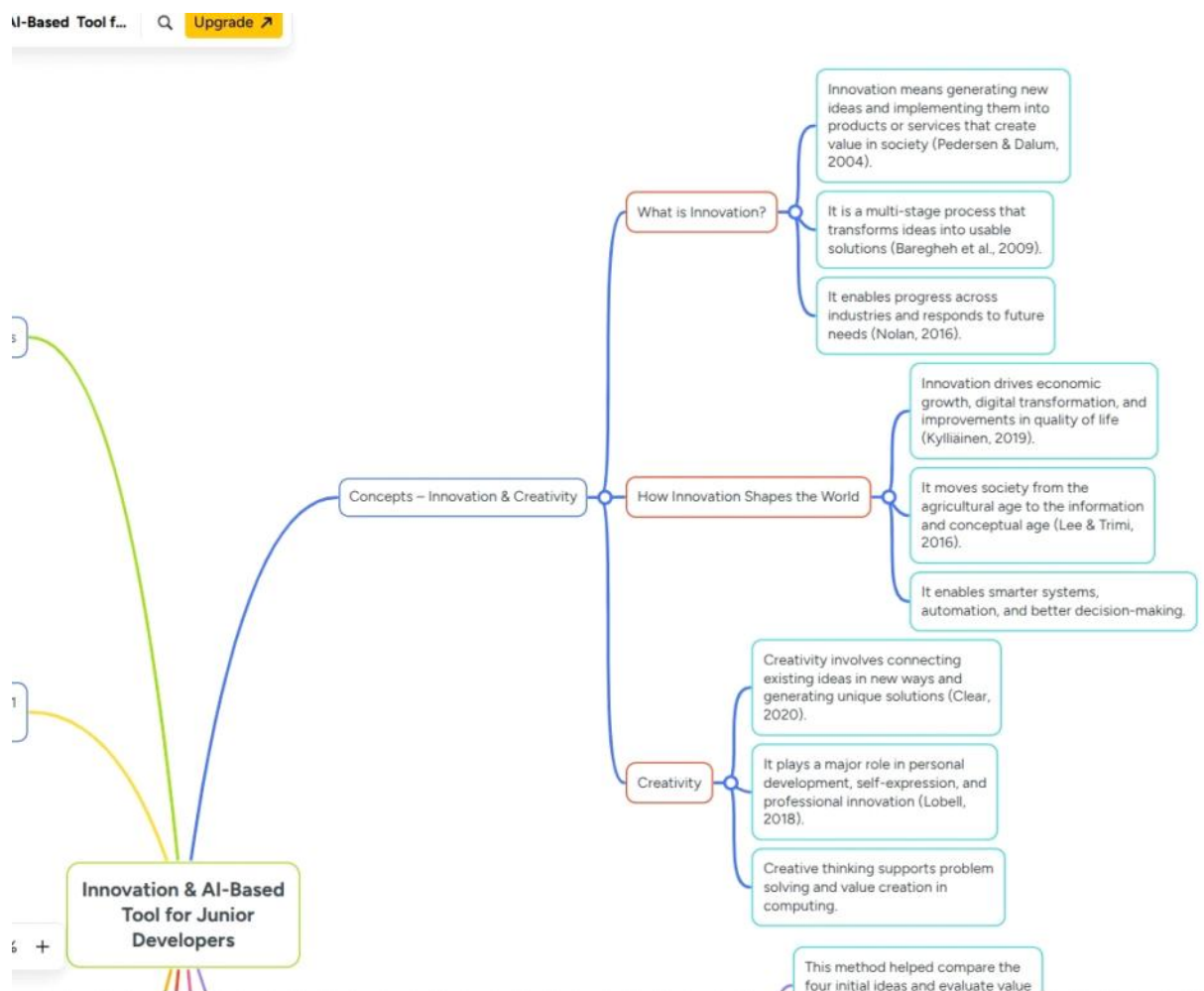
Full Mindmap



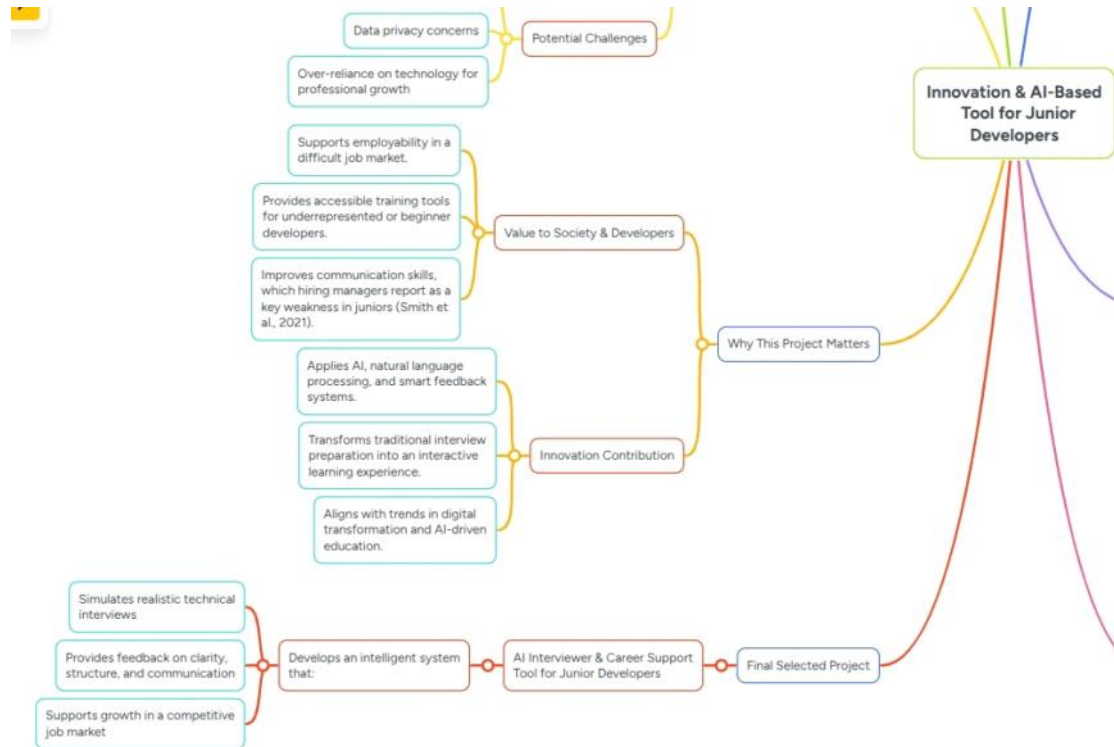
Mindmap section A



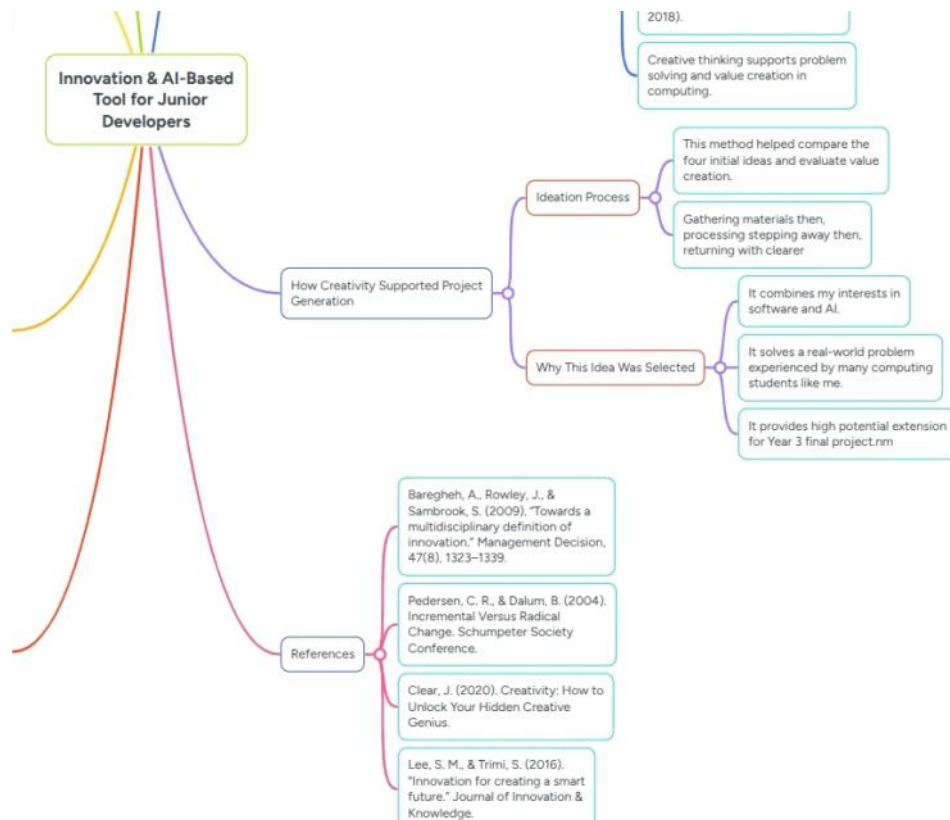
Mindmap section B



Mindmap section C



Mindmap section D



1. Aim of the Project

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The objective of this project is to create an AI-interviewing-support tool for junior software developers to gain confidence and become more successful in their job interviews. The purpose is to explore how junior developers are affected by the complexity of today's job market. They often lose their way and fall behind in communication, clarity, and presentation in interviews, despite having the required technical skills. This project aims to find out how artificial intelligence can simulate real-world scenarios and create supportive and adaptable feedback for the junior developers. The intention is to create an easily accessible and affordable solution that provides a meaningful difference in employability by helping junior developers to practice and improve their interview skills.

2. Objectives of the Project

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The project's primary goals are to explore junior developer challenges in the interview process and determine how AI-powered tools could assist in their interview preparation. First, the project will identify developers' primary challenges in the interview process, such as low confidence, lack of realistic questions, and difficulty formulating clear answers, as supported by recent studies [5], [6]. Second, it will analyse existing interview preparation platforms, such as AI-powered tools like ChatISA and simulation systems like Conversate, to understand their effectiveness and limitations in providing candidates with a meaningful learning experience. Finally, the project will design an approach for providing personalised and adaptive feedback based on evidence that AI systems could be used to deliver more individualised and context-aware support depending on users' performance and communication needs [5], [6].

3. Research Philosophy

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Pragmatism is chosen as the research philosophy. The reasoning behind this is that Pragmatism tends to focus on doing what is most useful in a particular situation. It does not hold on to rigid guidelines for research and instead focuses on producing practical results. According to Goldkuhl, "the research questions in the pragmatic approach are those that will lead to action, improvement, and problem solving, which are appropriate for creating new working artefacts that will work for real users to achieve real user needs" [7]. This is suitable as the project's focus is to understand the issues junior developers face and to build a tool that can provide value. Pragmatism is also more open to mixed methods research, which allows both the examination of a platform and information obtained from users [8].

4. Research Tools & Databases

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The evidence for this project will be taken from a combination of institutional and discipline-specific academic databases. This includes the UWTSD Library Search, which will be used as the main gateway for peer-reviewed journal articles, conference papers, and books on employability, technical interviews, and AI-based learning tools. In addition, IEEE Xplore will be used as a primary database for finding academic literature on artificial intelligence, natural language processing, and AI-powered assessment systems. The IEEE Xplore guide highlights advanced search features, Boolean operators, and filtering tools that can help in precise and efficient scholarly search [9]. Utilising these databases can help in drawing from credible sources in the field of computing, information systems, and AI-enhanced learning technologies.

5. Search Strategy

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This project will use a systematic search strategy based on well-defined search methods for identifying literature. This search will use boolean operators (AND/OR) to combine or exclude search terms like “AI interviewer” AND “junior software developer” OR “employability” OR “technology interviews” and parentheses for narrowing or broadening the search when necessary. The IEEE Xplore literature review guide also recommended using exact phrase searching, truncation (comput*), and “testing alternate keywords” to make the search more precise [9]. Filters such as year of publication, content type, and peer-reviewed status will be used to order results and seek the most relevant, current, and scholarly resources. This search method will help ensure strong evidence to underpin the analysis and design phases of the project. While this strategy will target and prioritise more recent literature, earlier academic publications may also be used if they are relevant and no current research is available.

Validity, Reliability, Generalisability & Ethics

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To ensure the validity of this project, a small pilot test will be conducted to improve and clarify questions for survey and interview activities. A pilot will enable the researcher to confirm the questions directly assess confidence, clarity, and communication performance are interpreted by participants as intended [8]. This aligns with the pragmatic research paradigm, which values iterative improvements and practical problem-solving.

To improve reliability, all interviewees will receive the same list of questions, ensuring that responses can be compared across the sample. Furthermore, data collection will be conducted using the same tool (Google Forms or the AI tool prototype), which minimises variability in responses due to changes in format or platform. Standardised procedures will also support the repeatability of the study, which is required to produce reliable results [9].

To support generalisability, the project will recruit junior developers with a range of experience, from novice to intermediate learners. Recruiting from a more diverse background will increase the likelihood that findings can be generalised to a broader population of early-career developers.

Ethical considerations will be addressed by anonymising all responses and not collecting personal data. This will ensure participant privacy and meet expectations for ethical research with human participants.

Research Strategies & Pilot Design

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Quantitative data will be collected pragmatically by creating a questionnaire with a Google Forms link to be answered. A questionnaire is a tool to measure user confidence, clarity, perceived difficulty and overall readiness for a technical interview in a quantitative manner. The standardisation of the questionnaire will also result in consistent responses from all users for analysis in comparison with one another. Qualitative data will be collected by using Creswell and Plano Clark's mixed-methods flexibility to remain pragmatic in spirit [9].

Subsequent to the data collection, the study will pilot two users with the AI Interviewer prototype for rapid testing of the system. The study will examine the users as they interact with the system. Pilot users will assist in identifying clarity, usability, and interview questions that are not covered or are repetitive in nature. Therefore, this will be a pilot that is also pragmatic in following the iterative evaluation cycles and process recommended by Goldkuhl [8].

As a result of the pilot process, the questionnaire will be adjusted. Questions will be validated to be clear and non-redundant and more closely reflect the objective of this project.

Quantitative and Qualitative Analysis

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The analysis for this project will combine both quantitative and qualitative methods in line with the pragmatic and mixed-methods approach described by Creswell and Plano Clark [9]. For the **quantitative analysis**, the project will use a before-and-after comparison to examine whether junior developers experience an improvement in confidence after interacting with the AI Interviewer prototype. Participants will provide confidence scores on a numerical scale before using the system and again afterwards. These two data points will allow simple comparative analysis to identify any measurable change in self-perceived clarity, structure, or interview readiness. This approach aligns with the project's aim of assessing real-world impact through practical and observable outcomes.

The **qualitative analysis** will use thematic analysis to interpret open-ended responses collected from participants. This method involves identifying recurring themes such as anxiety, clarity of responses, communication structure, or perceived usefulness of AI-generated feedback. Thematic analysis allows the researcher to capture detailed insights into participants' experiences and provides depth to complement the numerical data. This aligns with Goldkuhl's pragmatic view that research should integrate multiple forms of evidence to develop useful and actionable knowledge [8]. Together, these analytical methods provide a balanced understanding of both performance improvements and user perceptions.

References

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Appendix A - Mock Questionnaire

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Questionnaire link

<https://forms.gle/EB6P141GCsJ8Boes8>

Screenshot

The screenshot shows a Google Forms interface for a questionnaire titled "AI Interview Preparation Pilot Questionnaire". The form is displayed in a web browser window. The title is at the top, followed by a subtitle: "Please provide your feedback on the AI Interviewer tool you used for preparation." Below this, there are two identical 5-point Likert scale questions. The first question is "Confidence before using the AI Interviewer" and the second is "Confidence after using the AI Interviewer". Each question has five radio button options labeled 1, 2, 3, 4, and 5, with "Not confident" at the left end and "Very confident" at the right end. The form is currently in the "Preguntas" (Questions) tab, with "Respuestas" (Responses) and "Configuración" (Configuration) tabs also visible. The browser's address bar shows the Google Forms URL. The Windows taskbar is visible at the bottom of the screen.

AI Interview Preparation Pilot Questionnaire

Please provide your feedback on the AI Interviewer tool you used for preparation.

Confidence before using the AI Interviewer

1 2 3 4 5

Not confident ☐ ☐ ☐ ☐ ☐ Very confident

Confidence after using the AI Interviewer

1 2 3 4 5

Not confident ☐ ☐ ☐ ☐ ☐ Very confident