Namal University, Mianwali
Department of Computer Science

CSC-225 – Software Engineering

Complex Computing Problem – Milestone 1

Upwork Proposal Assistant

Real-World Client Communication & Proposal Automation System

Team Members

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Software development agreement

This Agreement is made on this day of **5 November 2025** between the Student Team of **Namal University, Mianwali**, enrolled in the **BS Computer Science** program, and the Requirement Provider (**RP**), **Faisal Shahzad** a Software Engineer at TechFoot with expertise in ERP and fintech systems using Node.js, Angular, and MariaDB. He now works as a freelancer, providing reliable software solutions, confirm collaboration for the semester software engineering project titled **"Upwork Proposal Assistant."**

The purpose of this Agreement is to establish a professional understanding between the Student Team and the RP for the successful design and development of the assigned software project.

Mutual Obligations:

- The RP will provide project requirements, domain guidance, and timely feedback.
- The student team will maintain professionalism and effective communication.
- Both parties will meet as needed for discussions and feedback sessions.
- All shared information will remain confidential and will only be used for academic purposes.
- The student team will work diligently to meet the project goals and deadlines.

This Agreement remains valid for the duration of the current academic semester. Both parties acknowledge that they have read and understood the terms of this Agreement and agree to collaborate responsibly for the success of the project.

Student Team:

1. Tayyab Shahzad
2. Najeeba
3. Kashif Ali

Requirement Provider (RP):
Faisal Shahzad

Student Leader

FAISAL Shahzad

Requirement Provider (RP)

This document serves as an official record of mutual understanding between the student project team and the Requirement Provider.

Contents

1 Introduction

In today's freelancing world, many online platforms such as Upwork have created new ways for freelancers to connect with Professionals clients. Success on such platforms depends on the proposal(A proposal is like a job application you send to a client who posted a project) writing, which is the first impression of freelancer on the client and client mainly select freelancer on the basis of his proposal; however, many freelancers find it difficult to write professional and attractive proposals which give them a job. And also writing a new proposal by hand takes a lot of time, effort, and experience.

Freelancers often spend hours researching how to structure their proposals, choosing the right tone, and highlighting their skills in a way that appeals to clients. This process can be frustrating, especially for beginners who lack experience or confidence in writing. In addition, each client has unique requirements and preferences, making it even more challenging to craft proposals that stand out.

The Upwork Proposal Assistant is a software that solves such kinds of problem. Automates the process of writing proposals using the smart template based on the user's previous history or client requirements and helps freelancers get their job. By analyzing past successful proposals and understanding client needs, the software can generate proposals quickly, ensuring consistency, professionalism, and a higher chance of success.

This tool is not only a time-saver but also a learning aid, allowing freelancers to understand what makes a proposal effective. Over time, users can improve their writing skills while relying on the software to handle repetitive tasks and tailor proposals for different projects and clients.

2 Problem Statement

Freelancers on platforms like Upwork often struggle to write professional and attractive proposals. Writing proposals manually is time-consuming, requires skill and experience, and can reduce their chances of getting selected. If a freelancer writes a proposal by hand, it takes a lot of time, and during that period, hundreds of other freelancers may apply for the same job, reducing the likelihood of the proposal being noticed.

Moreover, proposals need to address the client's specific pain points effectively; generic or poorly written proposals often fail to capture the client's attention. Freelancers frequently spend hours researching how to structure their proposals, deciding the right tone, and highlighting their skills in a way that appeals to clients. This process can be frustrating, especially for beginners who lack experience or confidence in writing proposals.

Every client has unique requirements and preferences, making it even more challenging to craft proposals that stand out. A single poorly timed or poorly worded proposal can cost a freelancer a potential opportunity, even if they are highly skilled in their domain. Hence, there is a strong need for a fast, efficient, and intelligent solution that not only saves time but also ensures proposals are professional, personalized, and compelling.

The Upwork Proposal Assistant addresses these problems by automating proposal writing using smart templates based on the user's previous history and client requirements. It quickly generates proposals that maintain consistency, professionalism, and focus on client needs, increasing the chances of getting selected. Additionally, this software serves as a learning tool, helping freelancers understand what makes a proposal effective, improving their writing skills over time while managing repetitive tasks and tailoring proposals for different projects and clients.

3 Objectives

The primary objective of the **Upwork Proposal Assistant** project is to design and develop an **intelligent application** that will help freelancers prepare more effective job proposals on the **Upwork platform**. The system will automatically **analyze client profiles**, assess client reliability based on parameters such as hiring rate and budget history, and generate personalized proposal templates using data from previous successful submissions.

The Upwork Proposal Assistant is a software which solves such kinds of problems. It automates the process of writing proposals by using the smart template based on the user's previous history or client requirements and helps freelancers to get their job. There are already softwares present in the market which are doing the same thing, but the thing which makes our software unique is this that it not only writes proposals, but before doing this, the software looks at the past history of the client and fetches all its important information such as location from which freelancer can apply, job success rate, job completion rate, client reviews, client country, average hourly paid rate, last activity, total number of job posts, and the most important thing, the format from which the post is written.

After doing all this, the software shows a detailed summary to the freelancer, based on which the freelancer decides whether he needs to write a proposal or reject it. This feature gives freelancers a smarter way to decide which jobs are worth applying for, saving their time and increasing their chances of success. It also allows freelancers to focus more on quality work rather than wasting time applying for irrelevant jobs.

After this, if a freelancer chooses to write a proposal, then the software suggests the best possible template, but also gives the freelancer full control to modify or customize it according to his own choice. The software then completes the proposal automatically in a professional format, ensuring that it matches the client's requirements, tone, and expectations.

In short, the main objective of this project is to help freelancers write proposals faster, smarter, and more effectively, using automation, intelligent analysis, and real-time client insights. This will not only improve the efficiency of freelancers but also increase their chances of getting hired by sending high-quality proposals in less time.

4 Stakeholders

- **Freelancer (End User):** As the project is about developing templates for the user specially for freelancers, its end user is a freelancer that may interact with this software to create proposals for their clients. This system will provide templates to end users so they could make proposals easily for their clients. The end user can also analyze their client profile and can also generate personalized proposals based on different templates provided by the software.

- **Administrator:** The system administrators are also stakeholders for this software as they will be responsible for managing the functionality of the software. They can also check the profiles of the system users. They are also responsible for the ethical use of the system; if there is any unethical activity being held, they can report to the legislative structure. In case of managing the system, the administrator is responsible to report bugs, updating and adding new features in the system to developers.

- **Developers:** Developers are also users for this software as they are responsible for the smooth functionality and can use it according to the constraints of the administrator in case of adding, removing and updating features. If there is any error that occurs in the system after the launching, they are responsible to check this bug and remove it. In this way, they are the salient users of the system.

- **Project Supervisors:** Project supervisors are also users of the software as they are responsible to provide a good featured software to the investors, system administrators and other key figures of the project. They work as a bridge between the developers team and administrative team. So they are also key users for the software.

- **Investors/External Platform:** External platforms such as Upwork can also use this software as part of their own platform to provide facilities to their users.

The system could have multiple users, so we can say that the system could be used publicly.

5 Software Development Methodology

The **Agile development methodology** will be adopted for this project. This methodology is chosen as it supports **incremental progress** with continuous iterations. The project is developed in various short sprints, with each sprint focused on a specific task such as proposal generation.

This development methodology ensures **flexibility**, adaptability to changes, and helps maintain a high-quality product. It also promotes **collaboration with stakeholders** through regular meetings to verify and validate the system's performance and progress.

Why Agile?

The Agile methodology is particularly suitable for this project due to the following reasons:

- **Iterative Development:** The system can be developed incrementally, allowing for continuous improvement and feature additions based on feedback from the Requirement Provider.
- **Flexibility:** Requirements may evolve as we better understand user needs and Upwork's platform dynamics. Agile allows us to adapt to these changes efficiently.
- **Regular Feedback:** Through bi-weekly meetings with the Requirement Provider, we can ensure the system meets expectations and make necessary adjustments.
- **Risk Management:** By delivering working features in short sprints, we can identify and address potential issues early in the development process.

Tentative Development Schedule (One Year)

Assuming a one-year development timeline, the project will be divided into the following phases:

- **Months 1-2: Requirements Gathering & Planning**
  - Meet with stakeholders to finalize requirements
  - Create detailed user stories and acceptance criteria
  - Set up development environment and tools

  - Design system architecture

- **Months 3-5: Sprint 1-3 (Core Features Development)**
  - Develop user authentication and profile management
  - Implement client profile analysis feature
  - Create proposal template database
  - Build basic proposal generation engine

- **Months 6-8: Sprint 4-6 (Advanced Features)**
  - Integrate AI-based proposal customization
  - Develop client history tracking and analysis
  - Implement success rate analytics
  - Create user dashboard and reporting features

- **Months 9-10: Sprint 7-8 (Testing & Refinement)**
  - Conduct comprehensive system testing
  - Perform user acceptance testing with freelancers
  - Fix bugs and optimize performance
  - Refine user interface based on feedback

- **Months 11-12: Deployment & Maintenance**
  - Deploy system to production environment
  - Provide user training and documentation
  - Monitor system performance
  - Plan for future enhancements

Throughout the development process, bi-weekly sprint reviews will be conducted with the Requirement Provider to ensure alignment with project goals and user expectations.

6 Tools and Technologies

Developing software is not an easy process; it requires a lot of planning and the right set of tools. To implement the requirements of this project, we will use different tools for documentation, design, development, and collaboration. Some of the key tools and technologies are as follows:

Documentation Tools

LaTeX: As LaTeX is a high-quality document preparation tool, we will be writing proposals and requirements from the RP using LaTeX. All types of documentation, including project reports and technical specifications, will be prepared through this tool to ensure professional formatting and presentation.

Version Control and Collaboration

GitHub: We will be using GitHub for storing project files by creating repositories and for collaboration between project members. We will also be storing meeting minutes and videos that will be captured during meetings with the RP. GitHub will also be used for version control to track changes and maintain code integrity throughout the development process.

Design and Prototyping Tools

Figma: Figma is a powerful tool for creating layouts and user interfaces for the software. We can create interactive prototypes for our system, allowing stakeholders to visualize the final product before development begins. This helps in gathering early feedback and making necessary adjustments to the design.

Canva: We will also be using this tool to create designs and graphics for our system. Some visual elements and presentations will be created using Canva to enhance the overall aesthetic appeal of the project documentation and user interface.

Requirement Management and Visualization

LucidChart: This is an advanced UML tool which provides different features for creating flowcharts to present requirements visually. This tool will be used to manage requirements, create system diagrams, and ensure simplicity in understanding complex processes. UML diagrams such as use case diagrams, sequence diagrams, and class diagrams will be created using LucidChart.

Development Tools and Technologies

The specific programming languages, frameworks, and databases will be finalized after detailed requirement analysis. However, based on the project scope, the following technologies are being considered:

- **Frontend Development:** React.js or Angular for creating an interactive user interface
- **Backend Development:** Node.js with Express.js for server-side logic
- **Database:** MongoDB or PostgreSQL for storing user data, templates, and client information
- **AI/ML Integration:** Python with libraries such as TensorFlow or scikit-learn for proposal analysis and generation
- **API Integration:** RESTful APIs for connecting with Upwork's platform (if applicable)

These tools and technologies will be reviewed and finalized in consultation with the Requirement Provider during the initial development sprints.

7 References

Here are the sources from which help for the development of this proposal has been taken:

https://mentorsol.com/best-software-development-tools/

https://www.upwork.com/resources/how-to-create-a-proposal-that-win

https://pmc.ncbi.nlm.nih.gov/articles/PMC8021201/

https://www.mdpi.com/2076-3417/12/21/10698

AI Tools Usage

During the preparation of this proposal, AI tools were used for the following purposes:

- Generating ideas for project objectives and features
- Improving the clarity and structure of written content
- Researching best practices for software development methodologies
- Suggesting appropriate tools and technologies for the project

All AI-generated content was reviewed, edited, and customized by the team members to ensure accuracy and relevance to the project requirements.