BSc Project Screening Form: Guidelines

Part 1 – Project Proposal

Student Name	Ramesh Kumar Sah
Student Number	2212384
Degree Pathway (course)	BSc Computer Science & Software Engineering bn
Supervisor Name	Ajaya Kumar Sharma
Title of Project	FreelanceFusion - A Decentralized Freelance Ecosystem with API Integration enabling Seamless Web and Mobile experiences
Abstract of the project	FreelanceFusion is the decentralized fusion of freelancers and projects aimed at tackling issues dominating centralized platforms like Upwork and Fiverr. Peer-to-peer structure allows freelancers and employers cut out the middleman and exchange services directly, lowering the transaction costs and making the platform more transparent, fair and trustworthy. Smart contracts make it possible to automate funds and transactions as well as to foster accountability and quality of work through a sophisticated reputation system. Due to effective implementation of this model FreelanceFusion can boast very high scalability as well as an excellent user experience across multiple devices. Not content with just its technical capabilities, FreelanceFusion takes a deep dive into the socio-economic implications of such decentralized freelance platforms — including studying their effect on legacy employment models and labour markets in general. The project seeks to address an important often forgotten dimension in traditional platforms — that of increasing labor bargaining power, material and rights conditions within the work-term in gig economy jobs. FreelanceFusion started by helping the welfare of freelancers and it also continues in this way to build a more balanced, equalised freelance ecosystem where both freelancer Friendly to customer Freelancer can contact with free Rob transactions between them.

	In Technical side is Developed by Django REST framework and React, this based on frontend (React, Backend(Django). Designed to work with the Bifrost token system, and built on Node. js, FreelanceFusion is secure, transparent, and scalable. Its decentralized nature guarantees the security, transparency and immutability of all transactions that take place on it; at the same time its interface is user-friendly making things easy for too freelancers / employers seekers Freelance work itself becomes a brighter and fairer future for all with FreelanceFusion.
Project deliverables	**Functional Freelancers' Decentralized Platform** ● Functionality for web and mobile version through which freelancers will get connected with employers to post projects as well bid on jobs + payment using secure method of smart contracts ● Backend API (Django REST Framework) to encompass most of the core functionality, user authentication, project management features and services such as bidding, payment system & reputation score etc. ● MySQL Database Schema for user data, project informations and bids with payments as well reputation socres. ● Frontend Application (React. user-friendly and responsive web application with intuitive dashboards, project listings, communication tools — JavaScript (Node.js) ● React Native (Mobile Application) for cross platform mobile application having same functionalities as web site **Documentation** ● Full API Docs ● User manuals ● Technical guides ● Deployment instructions **Quality Assurance** ● Testing and Quality Assurance Reports ● In-depth reports of testing processes, outcomes and bugs detection **Socio-Economic Impact** ● Socio-Economic Impact Report

	● Exploration of the potential socio-economic implications on standard employment models, labor markets and worker rights as a consequence of gig economy ● Results Data analysis, case studies and conclusion **User Feedback and Iteration** ● User Feedback and Iteration Report ● User Feedback based on testing and initial Deployment ● Made improvements and iterations following your feedback
Description of your artefact	FreelanceFusion is a decentralized freelance platform designed to address the shortcomings of existing centralized platforms like Upwork or Fiverr. Through RESTAPI's help, it creates a better place for freelancers and employers by increasing the level of direct communication as well as reducing dependence on an intermediary to mediate trust in verifiable transactions similar to how people have built their solid reputation. **Aim and Objectives:** ● Create the Decentralised platform eliminating intermediaries to lower transaction fees ● Implement a payment system based on smart contracts, which is safe and transparent ● design a good trust enhancing reputation system. ● Develop Web and Mobile Applications which are easy to use, intuitive accessible everything users. ● Analyzing & reporting: socio-economic impact of a decentralized freelance platform **Functional Features:**

	1. User registration & profiles: Secure user registrations and opt for detailed profile facility (as freelancer or employer) 2. Project Posting and Bidding: In this model employers post projects which contain detailed requirements, budgets; freelancers send bids. 3. Smart Contract-Based Payments: When a project is completed, payment can be automatically released and verified on the blockchain. 4. A dispute resolution system — For grievances or disputes between freelancers and employers. 5. Reputation System: Community set reputation, performance and feedback JSON-based score. 6. Securized Chat (Private and secure communication between freelancers and employers). 7. Web and Mobile App Platform: Use the platform from multiple devices. 8. Project management: Employers can conduct a project from its onset through to completion which extends milestone, deadlines. 9. **Dashboard for Buyers, Freelancers (Desktop or Mobile) Customization:** As providing the list of customization option allowing freelancers and employers to customize profile data/projects. 10. **Mobile Device Friendly:** Mobile device responsive for Freelancer and Employer. 11. **Push Notifications:** Send push notifications to freelancers and employers whenever new job, message or any other event occurred in the app. 12. **A payment system:** Integration with a number of the highest three party cost gateways means that you'll settle for payments 13. **Invoicing:** Auto tax invoicing, and payment tracking for conformity with tax regulations. 14. **Freelancer Matching:** Done automatically based on the project requirements and freelancer skill set.

	15. **Real-time Project Tracking:** Monitor projects in real time to track project progress and make sure your team finishes tasks on-time while staying within budget. 16. **Client Set-up:** Simple set up of clients to start getting them onto the platform without any hassles. 17. **Freelancer Onboarding:** Those Females who sign up for Platform can create a Freelancer account on the services where they are experts. 18. **Project Estimation**: Automatic project estimation based on freelancer skills and project requirements. 19. **Time Estimation**: Automatic time estimation based on project requirements and freelancer skills. 20. **Budgeting**: Automatic budgeting based on project requirements and freelancer skills.
Risk analysis	The project involves designing and implementing a platform that connects freelancers with employers, allowing them to collaborate and complete projects securely and efficiently. This risk analysis is conducted to identify potential risks associated with the project and develop strategies to mitigate them. **Possible Risks in Implementing the Kofe Job Project:** 1. **Technical Risks:** ○ **Smart Contract Vulnerabilities:** Smart contracts could be subject to exploitation or hacking, jeopardizing the platform's security. ○ **Database Management:** It might be difficult to maintain data consistency and manage the database structure, which can result in errors or data loss. 2. **Operational Risks:** ○ **Scalability:** Performance problems and consumer discontent could result from the platform's inability to

	grow to accommodate the needs of a huge user base. ○ **Performance:** Due to resource limitations or heavy usage, the platform may encounter performance problems including errors or sluggish loading times. ○ **Security:** The platform's reputation and user data could be jeopardized by cyberattacks or data breaches. 3. **Project Management Risks:** ○ **Scope Creep:** With the addition of additional features and needs, the project scope could grow excessively big, resulting in delays and cost overruns. ○ **Resource Constraints:** Inadequate funding, time, or manpower can impede the quality and progress of a project. 4. **Socio-Economic Risks:** ○ **Changing User Needs:** Modifications in user requirements or preferences would necessitate major platform modifications, which would raise expenses and cause delays. ○ **Regulatory Changes:** The platform's operation or functioning may be impacted by changes in laws or regulations, necessitating upgrades and compliance. **Approach to Mitigate Risks:** 1. **Risk Assessment and Prioritization:** To identify and rank risks, do periodical risk assessments with an emphasis on high-impact and high-probability hazards. 2. **Contingency Planning:** Create backup plans and tactics for risk mitigation as part of your contingency planning. 3. **Regular Communication:** To make sure that everyone is aware of the dangers and the ways to mitigate them, establish open and frequent communication. 4. **Risk-Based Decision Making:** Prioritize initiatives and activities that reduce risks

	and enhance benefits by basing decisions on risk assessments. 5. **Monitoring and Review:** Review and assess risks on a regular basis, revising mitigation plans and backup plans as necessary. 6. **Collaboration and Knowledge Sharing:** To identify and reduce risks, encourage team members and stakeholders to collaborate and share expertise. 7. **Continuous Improvement:** To lessen the possibility and impact of risks, continuously enhance project management procedures and risk management techniques.
How does your project relate to your degree course and build upon the units/knowledge you have studied/acquired	My project, FreelanceFusion - A Decentralized Freelance Ecosystem , strongly relates to my degree course in BSc Computer Science & Software Engineering by integrating and applying knowledge and skills acquired across multiple units. The project directly builds upon several key areas of my studies: ● **Software Development Methodologies (e.g., Agile, Waterfall, DevOps):** The project utilizes a hybrid Agile/DevOps approach, directly applying the principles and practices learned in software development methodology units. This includes sprint planning, daily stand-ups, sprint reviews, retrospectives, continuous integration, and continuous delivery. The iterative nature of the development process reflects the practical application of these methodologies. ● **Backend Development (e.g., Python/Django, Databases):** The backend API development using Django REST Framework directly leverages the programming skills and database management knowledge gained in backend development units. The design and implementation of the MySQL database schema and data model are a direct application of database design principles.

	• **Frontend Development (e.g., JavaScript/React, UI/UX Design):** The creation of the user-friendly web and mobile applications using React.js and React Native demonstrates the practical application of frontend development skills learned in relevant units. The focus on UI/UX design reflects the importance of user experience principles in software development. • **Data Structures and Algorithms:** Efficient data structures and algorithms are crucial for the platform's scalability and performance. The project requires the application of knowledge gained in data structures and algorithms units to optimize database queries, search algorithms, and other performance-critical aspects. • **Software Testing and Quality Assurance:** The project emphasizes rigorous testing throughout the development lifecycle, including unit testing, integration testing, and user acceptance testing. This reflects the importance of software quality assurance principles learned in relevant units. • **Project Management:** Managing the project's scope, timeline, and resources requires the application of project management skills and principles learned throughout the degree course. This includes planning, scheduling, risk management, and stakeholder communication. • **Socio-Economic Analysis (if applicable to the course):** The project's inclusion of a socio-economic impact report demonstrates the application of research and analytical skills, potentially drawing upon knowledge from units focusing on the societal implications of technology.

	In summary, FreelanceFusion serves as a comprehensive capstone project, integrating and applying a wide range of knowledge and skills acquired throughout my degree course. It demonstrates a practical understanding of software development methodologies, backend and frontend technologies, and project management principles, showcasing the culmination of my academic learning.
Resources required in developing the artefact	The resources required to develop the Kofe Job artefact can be categorized as follows: **I. Hardware Resources:** ● **Development Machines:** Multiple high-performance computers with sufficient RAM (at least 16GB), storage (SSD recommended), and processing power are needed for development, testing, and deployment. Access to campus computer labs with comparable specifications would be a valuable supplementary resource. ● **Server Infrastructure:** A robust server infrastructure is required for hosting the backend API, database, and potentially the frontend application. This could involve cloud-based services (AWS, Google Cloud, Azure) or on-campus server resources. The specific requirements will depend on the anticipated user load and data volume. ● **Mobile Devices:** Various Android and iOS devices are necessary for testing the React Native mobile application across different platforms and screen sizes. Access to a campus device lab would be beneficial. **II. Software Resources:**

	● **Programming Languages:** ○ Python: For backend development using Django REST Framework. ○ JavaScript: For frontend development using React.js and React Native. ● **Frameworks and Libraries:** ○ Django REST Framework: For building the backend API. ○ React.js: For building the web application frontend. ○ React Native: For building the mobile application. ○ Testing Frameworks: Jest, React Testing Library, pytest (or similar) for unit and integration testing. ● **Databases:** ○ MySQL: For storing user data, project information, and other platform data. ● **Development Tools:** ○ Integrated Development Environments (IDEs): VS Code, for efficient code editing, debugging, and testing. ○ Version Control System: Git for collaborative code management and version control. GitHub or GitLab for repository hosting. ○ Project Management Tools: Trello, or similar tools for task management and project tracking. ○ CI/CD Pipeline Tools: Jenkins, GitLab CI, or similar tools for automating the build, testing, and deployment process. ● **Operating Systems:** Linux (for servers), and Windows (for development machines). **III. Campus Resources:**

<table>
<tr><td></td><td colspan="2">

- **Server Infrastructure:** Availability of on-campus server resources for hosting the application.
- **Networking Infrastructure:** Reliable network connectivity for development, testing, and deployment.
- **Software Licenses:** Availability of software licenses for required tools and frameworks.
- **Library Resources:** Access to academic journals, books, and other resources for research on blockchain technology, freelance platforms, and socio-economic impact analysis.

IV. Other Resources:

- **Cloud Services:** AWS, Google Cloud, or Azure for serverless functions, database hosting, and other cloud-based services.
- **Domain Name and Hosting:** A domain name and hosting provider for deploying the web application.

This list provides a comprehensive overview of the resources required. The specific requirements and availability of campus resources will need to be verified with the relevant departments. The choice of specific tools and technologies within each category may be subject to change based on project needs and availability.
</td></tr>
<tr><td>Have you completed & submitted your ethics form?</td><td>YES</td><td>NO</td></tr>
<tr><td colspan="3">If the project is a development of previous work by yourself or others, give details below. Failing to declare such previous work here may be treated as an academic offence</td></tr>
</table>

Supervisor Signature:

After the proposal has been signed off by both the supervisor and course coordinator scan the proposal and upload on BREO <u>with</u> signatures. Projects that follow proposals that have not been approved may be cancelled and there will be no compensation for any time lost

Part 2 – List of relevant resources

Fill in this section after your project proposal has been approved by your supervisor. Use Harvard referencing (see https://lrweb.beds.ac.uk/a-guide-to-referencing). Modify the list below as appropriate. This list is part of Assignment 1 and will be submitted with the Project Proposal.

A). Books

1. *

B). Journal Papers

1. *

C). Websites with relevant information

1. *Upwork (n.d.) Upwork. Available at: https://www.upwork.com [Accessed: 25 October 2024]*
2. *Fiverr (n.d.) Fiverr. Available at: https://www.fiverr.com [Accessed: 25 October 2024]*
3. *Freelancer (n.d.) Freelancer. Available at: https://www.freelancer.com [Accessed: 25 October 2024]*
4. *Toptal (n.d.) Toptal. Available at: https://www.toptal.com [Accessed: 25 October 2024]*
5. *Gun.io (n.d.) Gun.io. Available at: https://www.gun.io [Accessed: 25 October 2024]*

D). Relevant software

1. *Django REST Framework (n.d.) Django REST Framework. Available at: https://www.django-rest-framework.org [Accessed: 25 October 2024]*
2. *React.js (n.d.) React.js. Available at: https://www.reactjs.org [Accessed: 25 October 2024]*
3. *MySQL (n.d.) MySQL. Available at: https://www.mysql.com [Accessed: 25 October 2024]*

E). Other

1. *StudyHub (n.d.) StudyHub. Available at: https://studyhub.beds.ac.uk [Accessed: 25 October 2024]*
2. *BREO (n.d.) BREO. Available at: https://breo.beds.ac.uk [Accessed: 25 October 2024]*
3. *University of Bedfordshire (n.d.) University of Bedfordshire. Available at: https://www.beds.ac.uk [Accessed: 25 October 2024]*
4. *Coursera (n.d.) Coursera. Available at: https://www.coursera.org [Accessed: 25 October 2024]*
5. *LinkedIn Learning (n.d.) LinkedIn Learning. Available at: https://www.linkedin.com/learning/ [Accessed: 25 October 2024]*