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| **Research and Innovation**  **Terms of Reference** | | | |
| **Name of Student\_1:** | *Rethabile Banda* | **ID Number\_1:** | *cse23-071* |
| **Name of Student\_2:** | *Babumbi Mazwiduma* | **ID Number\_2:** | *cse23-107* |
| **Name of Student\_3:** | *Pauletta Maunge* | **ID Number\_3:** | *cse23-091* |
| **Name of Student\_4:** | *Atang Masole* | **ID Number\_4:** | *cse23-065* |
| **Name of**  **Student\_5:** | *Lawrence Letshelea* | **ID**  **Number\_5:** | *cse23-028* |
| **Supervisor:** | *Thobo M* |  |  |
| **Title** | *GlowUp Booking System: Enhancing Salon & Barbershop Appointments Through Digital Innovation* | | |
| **Problem statement**  **Proposed solution** | Traditionally, Salons & Barbershops have been run by clients who either call to schedule appointments or go in to check availability. This manual approach often leads to long wait times and scheduling issues, as 30% of salons experience overbooking and missed revenue from inefficient scheduling (Vagaro, 2021). Customers also struggle to find suitable time slots, with 70% preferring the convenience of online booking (Salon Today, 2021). Moreover, no-show clients cause significant revenue loss, with some salons losing up to 20% of their income due to missed appointments (Forbes, 2019). These challenges highlight the need for a more efficient, automated scheduling system to improve customer satisfaction and streamline salon operations.  To overcome these obstacles, we have made the decision to put in place an online booking system so that clients can easily schedule haircuts, manicure services, and hairstyling. By giving users an intuitive platform to browse services, choose stylists, schedule appointments, pay, and receive loyalty benefits, the system will improve customer satisfaction, expedite appointment management, and lower no-show rates | | |
| **Aim**  **Objectives** | The project's goal is to provide an easy-to-use and effective digital appointment scheduling system for barbershops and salons.  1. To research about various hairstyles/haircuts that barbershops do and various nail styles that salons do  2. To research different apps/webapps that are like our webapp  3. To come up with a unique suitable UI/UX design for the app  4. To develop a fully functional webApp 5. To document the full development of the webApp from planning to the webApp functionality | | |
| **FUNCTIONAL REQUIREMENTS** | 1. Users (customers) must be able to create an account using email and password or social login (e.g., Google, Facebook). 2. Users must be able to log in and log out securely. 3. Users must be able to update their profile details (e.g., name, contact info, profile picture). 4. Users must be able to browse a catalogue of available services, including **hairstyles, haircuts, and nail services**, categorized into men’s and women’s sections. 5. Users must be able to search and filter services by name, price range, or estimated duration. 6. Users must be able to upload a custom image under an "Others" option if their desired style or nail design is not listed. 7. Users must be able to view service details, including estimated price, duration, and a description. 8. Users must be able to view available time slots for their selected service and preferred date. 9. Users must be able to see a list of available barbers/stylists/nail technicians and choose one. 10. Users must be able to request an appointment by selecting a service, a professional, and a time slot. 11. The system must send the appointment request to the barbershop/salon for approval, allowing the business to accept, decline, or suggest modifications. 12. Users must be notified (via app notification) when their appointment is approved, declined, or modified. 13. Users must be able to cancel or reschedule their appointment before a set deadline. 14. Users must be able to view their upcoming and past appointments in their profile. 15. Users must be able to make a deposit payment to confirm their appointment after approval. 16. Users must be able to choose from multiple payment methods (e.g., credit/debit card, mobile payment) and complete the payment in-app. Users will have to select a payment method per every transaction. 17. Users must be able to leave a rating and review for their barber/stylist/nail technician after the appointment. 18. Users must be able to receive feedback from the barbershop/stylist regarding their request or any modifications needed. Modifications are to be sent as notifications. 19. Users must earn loyalty points for each completed appointment, based on service price or predefined criteria.  20. Users must be able to view their accumulated loyalty points in their profile and redeem them for discounts or free services. Their points will have no expiration date whatsoever | | |
| **Resources &**  **Skills Required** | *Software* ***Programming Languages*** *– HTML, CSS, JavaScript (React or Vue for frontend), and Node.js/Python/PHP for backend.*  ***Database Management*** *– MySQL, PostgreSQL, or Firebase for storing user accounts, appointments, and transactions.*  ***Web Frameworks & Libraries*** *– React.js, Next.js, Express.js, or Django to speed up development.*  ***Version Control*** *– Git & GitHub/GitLab for collaboration and code management.*  ***API Integration*** *– Payment gateways (Stripe, PayPal), Google Maps (for location services), and Twilio (for notifications).*  ***UI/UX Design Tools*** *– Figma, Adobe XD, or Sketch for wireframing and prototyping*  ***Communication & Collaboration*** *– Slack, Discord, or Microsoft Teams for team discussions.*  *Hardware* ***Development Machines*** *– Laptops or desktops with sufficient processing power for coding and testing.*  ***Testing Devices*** *– Smartphones, tablets, and desktops to check responsiveness.*  *Skills Required*   * Frontend Development (HTML, CSS, JavaScript, React or Vue.js) * Backend Development (Node.js, Python, or Java) * Database Management (MySQL, PostgreSQL, or MongoDB) * API Development and Integration | | |
| **Outcomes and Deliverables** | 1. *A* ***research document*** *or listing popular hairstyles, haircuts, and nail styles categorized by gender and service type* 2. *A* ***comparative analysis report*** *detailing existing appointment booking apps/webapps, their features, strengths, weaknesses, and areas for improvement.* 3. To have **Wireframes and mock-ups** of the web app created using Figma, Adobe XD, or Sketch. 4. **A deployed web app** that meets the functional requirements. 5. A **comprehensive project report** detailing every phase (planning, research, design, development, testing, and deployment). | | |
| **Methodology** | This project will follow the Agile Software Development Methodology, specifically the Scrum framework, to ensure an efficient, user-driven, and iterative development process. Agile will help in managing changes, improving collaboration, and delivering a high-quality product through multiple sprints (development cycles). | | |
| **Limitations & Constraints** | ***Database Management:***   * *Constraint: Since we are still learning database design, structuring an efficient system that handles user accounts, appointments, and payments might be challenging.* * *Mitigation: We will research best database management practices, use online tutorials, and seek guidance from our supervisor.The system must efficiently manage user accounts, appointments, payments, and loyalty points.* * *Mitigation: Optimize database queries, implement caching, and use MySQL for structured data.*   ***Development Timeline:***   * *Constraint: We must juggle this project with other coursework, assignments, and exams, which may slow our progress.* * *Mitigation: We will use a Gantt chart to manage our time effectively and ensure we stick to deadlines by dedicating fixed hours weekly to the project. The project must be completed within a fixed time frame.* * *Mitigation: Agile methodology with Scrum will ensure iterative progress. A Gantt chart will track milestones.*   ***Testing & Bug Fixing:***   * *Constraint: We have limited experience in quality assurance testing, and debugging might take longer than expected.* * *Mitigation: We will conduct peer reviews, use debugging tools, and test the system in small increments to catch errors early. Limited time for extensive QA testing.* * *Mitigation: Unit and integration testing will be performed at each sprint phase.*   ***Scalability:***   * *Constraint: Since we are working on a student-level project, optimizing the system for large-scale usage is not our primary focus.* * *Mitigation: We will design a basic scalable system but prioritize making it functional within our scope. Handling increasing user traffic efficiently.* * *Mitigation: Load balancing and performance tuning techniques will be applied.*   ***Security:***   * *Constraint: Implementing strong security measures is difficult due to our limited knowledge of cybersecurity.* * *Mitigation: We will use encryption methods for user data and follow best security practices based on our research and class lessons. Implementing strong authentication and encryption.* * *Mitigation: Use industry best practices, including encrypted user credentials and secure APIs.* | | |
| **Evaluation** | *The GlowUp WebApp will be evaluated based on functionality, user experience, and business impact. Testing methods include unit, integration, performance, and security testing, alongside user acceptance testing to ensure smooth operations. Success will be measured by user engagement, reduced no-show rates, improved scheduling efficiency, and customer satisfaction through ratings and feedback. System reliability, uptime, and response time will also be monitored. Continuous improvement will be ensured through user feedback, updates, and performance tracking. Overall, the evaluation will determine the app’s effectiveness in streamlining salon appointment bookings and enhancing customer experience.* | | |
| **References** | *Vagaro. (2021). Salon Scheduling and No-Show Data Report. Vagaro.com.* [*https://support.vagaro.com/hc/en-us/articles/360000346733-Cancellations-No-Shows-Report*](https://support.vagaro.com/hc/en-us/articles/360000346733-Cancellations-No-Shows-Report)*.*  *Salon Today. (2021). Customer Preferences in Salon Booking. SalonToday.com.* [*https://www.salontoday.com/1079743/consumers-seek-value-reputation-and-a-high-end-experience-when-selecting-a-hair-salon*](https://www.salontoday.com/1079743/consumers-seek-value-reputation-and-a-high-end-experience-when-selecting-a-hair-salon)*.*  *Forbes. (2019). The Cost of No-Shows in the Beauty Industry. Forbes.* [*https://www.forbes.com/sites/forbessalesteam/2019/10/15/the-cost-of-no-shows-in-the-beauty-industry/*](https://www.forbes.com/sites/forbessalesteam/2019/10/15/the-cost-of-no-shows-in-the-beauty-industry/)*.* | | |
| **Project Schedule** | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Student**  **Names:** | | **Rethabile Banda, Pauletta Maunge, Babumbi Mazwiduma, Lawrence Letshelea, Atang Masole** | | | | | | | | | | **Project**  **Title** | | *GlowUp Booking System: Enhancing Salon & Barbershop Appointments Through Digital Innovation* | | | | | | | | | | **Supervisor** | | **Thobo M** | | | | | | | | | | **Project Task** | | | **Predicted**  **(hours)** | **Planned Start Date** | **Planned End Date** | **Specific Task Objectives or Deliverables** | **Actual (hours)** | **Actual Start**  **Date** | **Actual End**  **Date** | **Task Outcome Evaluation/Consequences** | | **No** | **Description** | | | **1** | **Supervisor Assignment & Team Agreement** | | **5** | **07/02/2025** | **07/02/2025** | **Approved Supervisor & project topic** | **3** | **07/02/2025** | **07/02/2025** | **We were able to come up with a project topic with the help of our supervisor** | | **2** | **Assignment of Tasks Within the Group** | | **5** | **11/02/2025** | **12/02/2025** | **Each member to be assigned a task** | **2** | **11/02/2025** | **11/02/2025** | **Each group member agreed to do a specific task that makes up the project** | | **3** | **Planning and Research** | | **20** | **11/02/2025** | **19/03/2025** | **Researching the project and how to implement the system** | **17** | **12/02/2025** | **15/02/2025** | **Research was made to come up with strategies and information on how to create the system** | | **4** | **Terms Of Reference Analysis** | | **10** | **10/02/2025** | **21/02/2025** | **Draft TOR document** | **4** | **10/02/2025** | **21/02/2025** | **A successful TOR document was drafted** | | **5** | **Literature Review & Methodology** | | **20** | **10/02/2025** | **07/03/2025** | **Research articles, summarize and draft review** | **20** | **27/02/2025** | **07/03/2025** | **A well drafted iterature review with all the relevant information to the project was drafted** | | **6** | **System Design & Data Colllection** | | **25** | **24/02/2025** | **21/03/2025** | **Collect, clean and prepare project data** |  | **10/03/2025** |  |  | | **7** | **Review 1 (Literature Review)** | | **5** | **05/02/2025** | **07/03/2025** | **Supervisor feedback on literature review** |  |  |  |  | | **8** | **Review 2 (System Design)** | | **5** | **19/03/2025** | **21/03/2025** | **Supervisor feedback on System Design** |  |  |  |  | | **9** | **Develop 1st Prototype // Developing the app** | | **30** | **19/03/2025** | **18/04/2025** | **Initial working prototype with core functionality** |  |  |  |  | | **10** | **Review 3 (1st protype & Data Results)** | | **5** | **16/03/2025** | **18/04/2025** | **Supervisor feedback on prototype** |  |  |  |  | | **11** | **Draft Final Report** | | **15** | **22/04/2025** | **25/04/2025** | **First version of final report** |  |  |  |  | | **12** | **Final Report Submission** | | **10** | **29/04/2025** | **02/05/2025** | **Completed, formatted report submission** |  |  |  |  | | **13** | **Skills Development: Programming, Database Management, React, LaTex** | | **20** | **10/02/2025** | **Ongoing** | **Building up on java, Database Management and LaTex skills** |  |  |  |  | | **14** | **Team Coordination & Weekly Meetings** | | **3 per week** | **10/02/2025** | **27/05/2025** | **Progress tracking & Review sessions** |  |  |  |  | | **15** | **Testing & Debugging Phase** | | **20** | **10/04/2025** | **25/04/2025** | **Fixing bugs, ensuring system stability** |  |  |  |  | | **16** | **Prepare Presentation & Demos** | | **10** | **20/05/2025** | **27/05/2025** | **Slides, demonstration & final representation** |  |  |  |  | | | |
| **Gantt Chart** |  | | |