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Skill Map FYP Team Akif Ziauddin 21F-9184 Zain Babar 21F-9341 M. Abubakar 21F-9278 Supervised by Dr. Hafiz Tayyab Javed FAST School of Computing National University of Computer and Emerging Sciences CFD, Pakistan 2025 0
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Intellectual Property Rights Declaration This is to declare that the work under the: Title: Skill Map ☐ BS Final Year Project ☐ MS Research Survey ☐ MS Thesis ☐ Course Project is the sole property of the National University of Computer and Emerging Sciences and is protected under the intellectual property rights laws and conventions. It can only be considered or used for purposes such as further enhancement, product development, or adoption for commercial or organizational use, only with the permission of the University. This statement applies to all students and faculty involved. Date: _____ M. Abubakar Signature: _____ Zain Babar Signature: _____ Akif Ziauddin Signature: _____ Supervisor: Dr. Tayyab Javed Signature: _____ 4 | P a g e Anti-Plagiarism Declaration This is to declare that the work under the: Title: Skill Map is the sole contribution of the author(s), and no part hereof has been reproduced on an "as-is" basis (cut and paste), which can be considered as plagiarism. All referenced parts have been used to support the argument and have been properly cited. I/We will be fully responsible and liable for any consequences if a violation of this declaration is determined. Date: _____ M. Abubakar Signature: _____ Zain Babar Signature: _____ Akif Ziauddin Signature: _____ Supervisor: Dr. Tayyab Javed Signature: _____ Acknowledgment First and foremost, we are deeply grateful to God for providing us with the strength, guidance, and perseverance to complete this project. We sincerely thank our families for their unwavering support and constant encouragement throughout this journey. Their belief in us has been a source of motivation at every step. Our deepest thanks go to our supervisor, Dr. Tayyab Javed, whose expertise, patience, and insightful guidance have been instrumental in the successful completion of this project. We truly appreciate all of you. Abstract Skill Map is a smart platform designed to make group software projects more efficient and organized. It helps divide large projects into smaller tasks, forms balanced teams based on each person's skills, and assigns the right tasks to the right team members. The goal of Skill Map is to ensure that every team member works on what they do best, whether it's designing the interface, writing backend code, or handling complex logic, so that the whole project runs smoothly. It takes the guesswork out of managing team projects by matching tasks with skills in a clear, fair, and effective way. By making collaboration smarter and more structured, Skill Map helps students and developers work together more successfully, gain real-world experience, and complete high-quality software projects with confidence. Introduction In today's fast-moving, team-oriented workspaces, getting the right people onto the right projects can make or break productivity. That's exactly where Skill Map steps in — a smart, web-based tool built to take the guesswork out of forming teams. Using AI, it looks at users' skills, experience, and schedules to help match them with projects that actually fit. Beyond just pairing people up, it also breaks projects into manageable chunks and assigns tasks in a smart, logical way. With

an emphasis on ease-of-use, scalability, and strong security, Skill Map aims to make team coordination smoother and project planning way less painful. Literature Review When it comes to project success, forming the right team and distributing tasks effectively plays a huge role. The old-school method of manually sorting through resumes and assigning work often leads to inefficient results. But with the rise of machine learning and AI, newer tools are stepping in to handle this more intelligently. These systems can evaluate skills, experience levels, and availability to build teams that actually work well together. Skill Map applies these principles by offering an AI-driven platform that helps with everything from assessing capabilities to dividing tasks and assembling teams, all in a secure, scalable online setup. Vision Document Project Vision Problem Statement: Problem Aspect Description Problem Successfully pulling off a project depends on breaking it down into manageable pieces, building the right team, and giving the right tasks to the right people. But in most places, this whole thing is still done by hand, which wastes time and leads to sloppy execution. Impact problem of When teams aren't structured properly, tasks aren't clear, or work lands in the wrong hands, things start falling apart. You end up with delays, people doing work they're not trained for, and projects that underperform. Affects Project managers, team leads, and basically anyone working in a team setting ends up paying the price for these inefficiencies. Solution What we're building is a system that automates the stuff that usually slows things down: turning projects into tasks, forming teams with the right mix of skills, and making sure those tasks land with the right people. Less manual work, fewer screw-ups, better results.. Successful Solution If done right, the system should make life easier — tasks get handed out more smoothly, teams work better together, and people actually end up doing work that matches their skills. The end result? Less chaos, more productivity, and projects that don't crash and burn. Business Opportunity Identified Opportunity: Projects these days aren't simple — they're complex, fast-paced, and need people with really specific skills. But most teams still rely on outdated, manual methods to figure out who should do what. This leads to all kinds of mess: delays, bloated budgets, and a whole lot of stress. Clearly, there's a need for a smarter, faster way to get the right people on the right tasks. Proposed Solution: That's where Skill Map comes in. It's built to take the heavy lifting out of team setup and task assignment. Using AI, it matches team members to project needs so things actually get done by the people who are best at them. It's designed to: ? Make Teams Smarter: Build teams automatically based on who's got the right skills. ? Match Tasks Better: Hand off tasks to the people most equipped to handle them. ? Get Better Results: Improve how fast and well projects are delivered. ? Keep People Sane: Share the workload fairly so no one's drowning in tasks they hate. Market Potential: With More industries are moving to digital project tools, especially in areas like IT, software dev, and consulting. But most of those tools still ignore the human side — skill matching. That's exactly where Skill Map fits in. It's not just another to-do list app — it actually helps teams work better from the inside out. Why Skill Map Is Actually Different: Unlike the usual project management apps that just give you checklists and deadlines, Skill Map digs deeper. It uses smart AI to figure out who's actually good at what, then builds teams and assigns tasks based on real skills — not just job titles or gut feelings. That's the edge. Objectives Skill-Based Team Formation: o Build a platform that doesn't just throw people into groups randomly. It will look at exactly what a project needs and handpick a team with the right mix of skills to match. Think of it like assembling a superhero squad minus the capes. Optimized Task Assignment: o The system won't just toss out tasks like candy at a parade. It'll check who's good at what and how busy they are — then assign work in a way that actually makes sense. Less burnout, more getting things done. Enhanced Project Success Rates: o At the end of the day, all this brainpower is aimed at one thing: making sure projects don't flop. With better teams and smarter task assignment, projects are more likely to finish on time and not turn into dumpster fires halfway through. Improved Team Satisfaction: o We're building a system that doesn't dump all the hard stuff on the same few people. Tasks will be handed out based on who's actually good at 11 | P a g e them and who isn't already buried under a mountain of work. It's about fairness, transparency, and not turning every sprint into a stress marathon. When people feel the workload makes sense, they're more motivated, less burnt out, and way less likely to rage-quit halfway Project Scope We're building Skill Map, a web app made to

take the pain out of team formation and task assignment. No more guesswork, no more spreadsheets — just a smart system that figures out who's good at what and lines them up with the right jobs. It's all driven by AI that understands skill sets and project needs. At the core, we've got two main brains running the show: ? Skill-Matching Engine – pairs the right people with the right projects. ? Task Assignment System – splits up the work intelligently and fairly. Both come wrapped in a clean, no-BS interface that's easy to use without needing a manual or a tech degree. The goal? Make project management smoother, faster, and way less chaotic. Constraints Market Demographics There's a growing demand for smarter ways to manage teams and tasks, especially in fast-moving industries like software and consulting where projects are complex and timelines are brutal. But let's not kid ourselves—Skill Map isn't launching into an empty room. There are already plenty of project management tools hogging the spotlight, which means we're walking straight into a turf war. And the tech running behind Skill Map isn't exactly lightweight. Those intelligent algorithms? They come with a cost—processing power, infrastructure, and people who actually know what they're doing. That's a tough sell for smaller teams who might not have the setup or the patience to figure it all out. Then there's the human factor. Nobody likes changing systems they're already used to. Getting companies to abandon whatever Frankenstein setup they've been duct- taping together for years is going to be a fight, especially if it means retraining staff and adapting to a new way of working. And don't forget about growth pains. If Skill Map actually takes off and user numbers spike, the platform has to keep running like clockwork—no slowdowns, no crashes. Scaling up without dropping the ball will be one of the biggest challenges we face. Pulling this off means outthinking the competition, handling the tech demands, and convincing users that change won't be a pain in the ass. It won't be easy, but that's the reality. Stakeholders: Name Description Responsibilities FAST-NU Serves as the top-level authority for the Skill Map project,overseeing permissions and direction. Responsible The group tasked with building the application—handling everything from design to testing.oals. Development Team The group tasked with building the application—handling everything from design to testing. Responsible for writing code, testing features, keeping documentation updated, and sticking to project timelines. Supervisors Individuals providing direction and oversight to the development team throughout the project. Track progress, help manage schedules, ensure goals are met, and offer strategic input when necessary. User Profiles: Description Project Manager: The primary end user responsible for managing projects.. Type Project Manager: Leads team coordination and monitors project progress closely. Responsibilities Project Manager: Manages teams and tracks project progress. Success Criteria Project Manager: Successful formation of teams and smooth project execution. Involvement Project Manager: Engaged throughout all phases of the project lifecycle Deliverables Project Manager: Efficient management of teams and task assignments. Comments/Issues Project Manager: Might face challenges with system integration and user adoption. Alternatives and Competition Asana is a popular go-to for task tracking, project oversight, and keeping teams in sync. It handles the basics well—assigning tasks, tracking progress, and facilitating communication—but it's clueless when it comes to smart skill matching or optimizing team setups. If you want brains behind the scenes, Asana won't cut it. Trello is all about simplicity and visuals, using cards and boards to keep projects organized. It's flexible and easy for most people, but don't expect it to form teams based on actual skills or make task assignments smarter. Trello's more like sticky notes on a digital wall, no AI wizardry involved. Product Overview Next up, we'll break down the core features of Skill Map, including a high-level diagram to show how everything fits together. High Level Diagram: System Requirements Specification (SRS) List of System Features ? Break projects into manageable chunks. ? Form teams based on actual skills, not just guesses. ? Assign tasks to the right people. ? Make sure users log in properly. ? Keep track of progress so no one's slacking off. Functional Requirements ? Project Segregation: Chop projects into tasks and figure out which skills each task needs. ? Team Formation: Match those tasks to developers who actually know their stuff. Suggest teams that make sense skill-wise. ? Task Assignment: Hand out tasks based on who's best suited for the job. ? User Authentication: Check logins and block access if someone's faking it. ? Progress Monitoring: Keep an eye on task status—who's done, who's dragging. Non-Functional Requirements ? Scalability: Should handle more users, projects,

and data without choking. ? Reliability: Stay up and running. Recover gracefully if things blow up. 18 | P a g e ? Performance: Get stuff done fast—no waiting around for team formation or task breakdown. ? Security: Protect passwords and sensitive info. Lock down data access with roles so no freeloaders get in. High Level Use-cases: Use Case ID Use Case Name Actor Description 1 Project Creation Admin The admin initiates the project by providing a project description and deadlines. 2 Task Segregation Agent The Agent decomposes the project into tasks and identifies key components. 3 Team Formation Agent The Agent forms a generic team by matching individuals' skills with the tasks. 4 Task Assignment Agent The Agent assigns tasks to team members based on task requirements and skills. 5 Monitor Progress Agent The Agent tracks the progress of tasks and alerts any delays or issues. 6 Authenticate User Employee,Admin The System verifies user identity before granting access (Admin or Employees). Expanded Use Cases Use Case: Project Creation No. Field Description 1 Actor Admin 2 Description The admin initiates the project by providing a project description and deadlines. 3 Preconditions Admin is logged into the system. System is ready to accept new project data. 4 Postconditions A new project is created with a description and deadlines in the system. 5 Flow of events 1. Admin selects "Create Project." 2. Admin enters project details 3. System validates input 4. System creates the project 5. System notifies stakeholders 6 Exceptions Invalid project data, system prompts Admin to correct input. Use Case: Task Segregation No. Field Description 1 Actor Intelligent Agent 2 Description The system decomposes the project into tasks and identifies key components. 3 Preconditions A project has been created. 4 Postconditions The project is divided into manageable tasks. 5 Flow of events 1. System retrieves project details 2. System analyzes project scope. 3. System identifies key components. 4. System generates and categorizes tasks. 5. System saves task breakdown. 6 Exceptions Incomplete project data; system cannot segregate tasks. Use Case: Team Formation No. Field Description 1 Actor Intelligent Agent 2 Description The system forms a generic team by matching individuals' skills with the tasks. 3 Preconditions Tasks have been segregated and categorized. 4 Postconditions A team is formed with individuals whose skills match the task requirements. 5 Flow of events 1. System retrieves tasks and skill requirements 2. System matches individuals to tasks. 3. System forms the team. 4. System notifies team members. 6 Exceptions No suitable candidates available for team formation. Use Case: Task Assignment No. Field Description 1 Actor Intelligent Agent 2 Description The system assigns tasks to team members based on skills and task requirements. 3 Preconditions The team has been formed. Tasks have been segregated. 4 Postconditions Tasks are assigned to appropriate team members. 5 Flow of events 1. System retrieves available team members and skills. 2. System matches tasks to team members. 3. System assigns tasks. 4. System notifies team members of their assignments. 6 Exceptions Tasks cannot be assigned due to unavailable team members. Use Case: Monitor Progress No. Field Description 1 Actor Intelligent Agent 2 Description The system tracks task progress and sends alerts for any delays or issues. 3 Preconditions Tasks have been assigned. 4 Postconditions Progress is monitored, and stakeholders are notified of any issues. 5 Flow of events 1. System tracks task completion. 2. System sends progress updates. 3. System alerts Admin of any delays or problems. 4. Admin takes action based on alerts 6 Exceptions System is unable to retrieve progress data due to system errors. Use Case: Authenticate User No. Field Description 1 Actor Intelligent Agent 2 Description The system verifies the identity of users before granting access. 3 Preconditions User (Admin or Employee) attempts to log in. 4 Postconditions User is authenticated and granted access, or denied access if credentials are invalid. 5 Flow of events 1. User submits credentials. 2. System validates credentials. 3. If valid, system grants access. 4. If invalid, system denies access and prompts for correction. 6 Exceptions Incorrect credentials provided; system denies access. Use Case Diagram: Activity Diagram: System Sequence Diagram: segregation Task assignment Team formation Domain Model: Class Diagram: State Machine: State Diagrams: Project Segregation Team formation: Task Assignment: 1|Page 2|Page 3|Page 5|Page 6|Page 7|Page 8|Page 9|Page 10|Page 12|Page 13|Page 14|Page 15|Page 16|Page 17|Page 19|Page 20|Page 21|Page 22|Page 23|Page 24|Page 25|Page 26|Page 27|Page 28|Page 29|Page 30|Page 31|Page 32|Page