Deliverable 1: Project definition and Software Requirements Specification

Jump to bottom

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1. Introduction

1.1. Purpose

TalentSwap's goal is to aid in the advancement of humanity. Break down stigmas about confidentiality and selfishness and replace them with a spark of innovation and the hope for collective advancement.

It stems from the recognition of untapped potential linked to collaboration and knowledge sharing from one company to another and viceversa. Several specific reasons call for the development of TalentSwap:

- Businesses often have a difficult time finding the specific abilities needed to address ever-growing market demands. TalentSwap provides a platform for companies to build their desired workforce skillset by facilitating the exchange of talent with complementary knowledge and experience a different business might possess.
- Innovation thrives in environments where diverse opinions collide. By facilitating talent exchange, TalentSwap encourages the interchange of ideas and fosters a culture of innovation.
- TalentSwap offers employees opportunities to broaden their skill sets, gain exposure to different industries, and expand their professional networks. TalentSwap not only boosts people's growth as a group but also helps build up the individual.
- Collaboration is essential for addressing complex challenges and driving collective progress. TalentSwap promotes collaboration by encouraging businesses to work together, share resources, and learn from each other's experiences and best practices.

- TalentSwap provides a platform for businesses to engage with a diverse range of associates, including companies of different sizes, industries, and locations. This promotes diversity and inclusion within the business ecosystem.

1.2. Scope

> a) Product Name:

Talent Swap: A Python and Django based web platform that facilitates the exchange of talent between workers and companies.

> b) Product Features:

The Talent Swap platform will enable users (workers and companies) to exchange talents with each other in a transparent and efficient manner. Key functions will include:

- Post and search for vacancies: Companies can post available vacancies and workers can search and apply for vacancies that match their skills and experience.
- Profile management: Users can create detailed profiles that highlight their skills, experience and preferences.
- Messaging and chat: Users can communicate with each other through integrated messaging and chat to discuss specific details of vacancies and agree on terms.
- Exchange management: Users can manage and track talent exchanges, including contract management and experience assessment.
- Reporting and analytics: The platform will provide reporting and analytics tools for users to evaluate the performance of exchanges and gain insights into labor market trends.

> c) Software Application:

The Talent Swap platform will be applied in business and work environments, connecting companies and workers from diverse industries and geographic regions.

> Benefits:

- Facilitates the exchange of talent between companies, fostering collaboration and mutual learning.
- Enables workers to access career development opportunities and diverse work experiences.
- Helps companies meet their talent needs in a flexible and efficient manner.

> Objectives and Goals:

- Connect workers with job opportunities.
- Improve efficiency in the recruitment process.

- Foster collaboration and learning between companies and workers.

> d) Consistency with Higher Level Specifications:

The scope of the Talent Swap project is aligned with the company's vision and strategic objectives, as well as with the needs identified in the current labor market. Higher level specifications, such as business strategy and market requirements, have been taken into account to define the key functions and features of the product.

This project scope establishes a clear basis for the development and implementation of the Talent Swap platform, ensuring that all stakeholders have a clear understanding of the product's objectives, functions and benefits.

1.3. Product Overview

1.3.1. Product perspective

TalentSwap is an independent web-based platform. The platform utilizes technologies like Django, for server-side logic, data processing and communication with the database; Bootstrap, an easy-to-create and easy-to-understand tool for both developer and user respectively, to ensure compatibility across devices and screen sizes; MySQL as the database to store and manage user data, company profiles, employee information and collaboration records; and GitHub, as the version control system to manage the source code, track changes, and collaborate on development efforts among team members.
The most important interaction between these elements, is the one between MySQL and Django. Django takes charge of displaying and executing functions based on information stored in the database, which is, simultaneously, in constant change and expansion. Bootstrap masks the directive already given by Django, to make it easier on the eyes of the consumer, which is just as important. A digestible, straight forward non-polluting interface. Github not only allows the team to impose order in the development stages, ultimately allowing for a smoother and faster production, but also highlights the importance of transparency.

1.3.2. Product functions

TalentSwap allows businesses to explore profiles of employees from other companies interested in talent exchange and viceversa, or post exchange offers for other companies and employees to consider, with the objective of supplying an identified need, problem, or inconvenience in any department. Or even if the goal is simply to evolve and grow more efficiently.
Employers can propose and negotiate employee exchanges directly through the platform. It serves as a central hub for knowledge sharing, facilitating the exchange of expertise, insights, and best practices between businesses, including a feedback mechanism where businesses and employees can provide reviews and ratings based on their collaboration experiences.

1.3.3. User characteristics

The target audience for TalentSwap encompasses businesses, big or small, alongside individuals seeking to present themselves as candidates for Talent Exchange opportunities. No predetermined educational, experiential, or are of expertise requirements are imposed on its users. Companies have the freedom to specify the areas in which they seek talent exchange, including software development, marketing, human resources, security, construction, carpentry, or rug making. Additionally, participating businesses posses full authority to determine the extent to which disabilities of potential candidates may influence the exchange process.

The sole mandatory characteristic, for both businesses and employees, is a desire to grow professionally within their respective industries and a level of openness to share their expertise with others.

1.3.4. Limitations

> a) Regulatory Policies:

Local, regional or international labor regulations may impose restrictions on how talent exchanges can be made and what information must be included in contracts.

> b) Hardware Limitations:

Depending on the technological infrastructure available (our personal computers and electronic resources), there may be limitations in terms of processing capacity, data storage and availability of communication networks.

> c) Interfaces with other Applications:

Integration with existing human resources systems in the participating companies might require the implementation of specific interfaces and compliance with data exchange standards.

> d) Parallel Operation:

The platform must be able to handle multiple talent exchanges simultaneously without compromising system performance or stability.

> e)Audit Functions:

Audit functions will be determined to track and record all interactions and transactions within the platform, ensuring traceability and transparency.

> f) Control Functions:

Appropriate controls must be established to ensure authentication, authorization and protection of sensitive user and company data.

> g) Signal Handshake Protocols:

Handshake protocols must be defined and followed to ensure reliable communication between users and the platform, such as:

- Reliability of Communication: Robust handshake protocols must be implemented that ensure reliable communication between users and the platform, minimizing data loss and ensuring the correct delivery of messages.
- Transmission Efficiency: Handshake protocols must be efficient in terms of bandwidth and response time, guaranteeing fast transmission without unnecessary excesses.
- Error Handling: Mechanisms should be established for the detection and handling of errors during the handshake, ensuring that any problems are identified and addressed in a timely manner.
- Communication Security: Security in data transmission is essential. Encryption measures must be implemented to protect the integrity and confidentiality of the information transmitted during the handshake.
- Compatibility: Handshake protocols must be compatible with a variety of devices and network environments to ensure a consistent user experience.
- Scalability: They must be designed to be scalable and able to handle an increase in workload as the number of users and transactions grows.
- Interrupt Resilience: Protocols must be resistant to interruptions and able to recover from unexpected events, such as connection loss or reboots.
- Clear Documentation: Clear and complete documentation on the implemented handshake protocols should be provided to facilitate the integration of other applications and services.

> h) Quality Requirements:

Quality requirements must be established, including:

- System Reliability: The platform must be highly reliable, with a 99.9% availability rate to ensure that users can access and use the platform when they need it.
- Data Accuracy: The accuracy of the information on the platform must be guaranteed, minimizing errors in the presentation of vacancies, user profiles and contractual details.
- Response time: The platform's response time to user actions, such as searching for and applying for vacancies, should be fast, ideally within 2 seconds, to provide a seamless experience.
- Data Security: Data security is paramount. Robust encryption, authentication, and authorization measures must be implemented to protect sensitive user and business information.
- Scalability: The platform must be scalable to handle sustained growth in users and vacancies without significant performance degradation.
- Usability: The user interface should be intuitive and easy to use, ensuring that users can navigate and use the platform without difficulties.

- Regulatory Compliance: The platform must comply with all labor regulations and data protection regulations in the jurisdictions in which it operates.

> i) Criticality of the Application:

The Talent Swap platform is critical to the business operations of participating companies and must be available and functioning reliably at all times.

> j) Safety and Security Considerations:

Robust security measures must be implemented to protect sensitive user information, ensure data integrity, and prevent unauthorized access.

> k) Physical/Mental Considerations:

Accessibility needs must be taken into account to ensure that the platform is accessible to people with physical or mental disabilities.

1.4. Definitions

- **Algorithm**: A set of step-by-step instructions for solving a problem or performing a task.
- **Bootstrap**: A front-end framework used to create responsive and user-friendly web interfaces.
- **Columns**: The vertical divisions in a database table that represent different types of data.
- **Data Validation Rules**: Criteria used to ensure that data entered into a system meets specified requirements or standards.
- **Database**: A structured collection of data stored electronically in a computer system.
- **Django**: A high-level Python web framework used to build web applications quickly and efficiently.
- **Encryption**: The process of converting data into a code to prevent unauthorized access.
- **Execution Time**: The amount of time it takes for a program or process to complete its task.
- **Function**: A set of instructions that performs a specific task or calculation.
- **GitHub**: A web-based platform used for version control and collaboration on software development projects.
- **Inputs**: Data provided to a system or program for processing.
- **Interface**: A point of interaction between components of a system, such as a user interface for interacting with software.
- **Live Notifications**: Real-time alerts or messages that inform users about events or updates.
- **MySQL**: An open-source relational database management system used for storing and managing data.
- **Output**: The result or outcome produced by a system or process.

- **Popup Messages**: Small windows that appear on a screen to display information or notifications.
- **Python**: A high-level programming language known for its simplicity and readability.
- **Query**: A request for information from a database or data source.
- **Requests**: Actions or commands made by users or systems to retrieve or manipulate data.
- **Response Time**: The time it takes for a system to respond to a user request or input.
- **Search and Filtering Operations**: Techniques used to find and narrow down relevant information within a dataset.
- **System**: A set of interconnected components or elements working together to achieve a common goal.
- **Uptime**: The amount of time a system or service is available and operational.
- **User Authentication**: The process of verifying the identity of a user accessing a system or application.

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3. Specific requirements

3.1. External interfaces

User Interface:

The forefront of TalentSwap. Direct interactions from users. It's purpose is to capture user inputs and display required information, which means it's comprised of a two-way communication system. Inputs from the user, like searching for a specific vacancy in the searchbar, or clicking an already displayed vacancy for more detailed information, outputting to the system, only for the system to output the required information back to the user.

Going a little more indepth on the searchbar function, it'll have a limit of 50 characters, no matter the type, with communication as quick as the connection with MySQL allows, which ties it to the Data Interface.

Data Interface:

Serves the purpose of storing user information, such as emails, passwords, certificates, photos, as well as active posts on the platform. Recieves it’s input in two ways: the first, is user registration or modification. A new account is created or modified, and it’s information is stored in the database. The second, are user or company offers and vacancies. Login info is exclusively available to it’s owner, and offers are publicly available, which also acts as the Data Interface output toward the User Interface, ideally as fast as MySQL allows. The user has no direct access to this interface.

Communication Interface:

Connects the database directly to the user via messages. Linked to both Data Interface and User Interface, for this reason. Sends alerts to the user’s email about accepted or potentially relevant offers, and popup messages or live notifications in case the user is online at the time.

3.2. Functions

- FR01. The web app SHALL SUPPORT user authentication incluiding sign-up funcionality
- FR02. WHILE user is registering the platform SHALL PROVIDE the user WITH THE ABILITY TO record their academic AND employment information especially their work interests
- FR03. The company user SHALL BE ABLE TO UPLOAD the vacancies that their company has available for an exchange.
- FR04. AFTER entering the web application the platform SHALL DISPLAY all the available exchange vacancies incluiding the details of each one
- FR05. The employee user SHALL BE ABLE TO APPLY to the vacancies, ONLY IF it's available.
- FR06. The web app SHALL MATCH employees with companies based ON qualifications, skills, AND company needs.
- FR07. The web app SHALL PROVIDE the users app WITH THE ABILITY TO COMMUNICATE BETWEEN them, PROVIDING a chat for ongoing interaction and negotiation throughout the exchange process.
- FR08. The web app SHALL PROVIDE users WITH THE ABILITY TO UPLOAD contracts OR agreements for other parties to evaluate.
- FR09. IF users agree to the provision of the service and the provisions of the contract, THEN the web app SHOULD SEND a confirmation.

- FR10. WHILE the user is registering, the web app SHALL ALLOW employee users to add multimedia elements to their profiles, such as images, videos or links to relevant projects.
- FR11. DURING the consolidation time of a service, the system SHOULD DISPLAY on the screen the status of the request, alternating between reviewing, accepted or denied.
- FR12. The web app SHALL PROVIDE employed users WITH THE ABILITY TO REVIEW vacancies based on their experiences after the exchange.
- FR13. The platform SHALL FEATURE a user-friendly interface that allows for easy navigation AND access to relevant information.
- FR14. The platform SHALL PROVIDE real-time notifications AND updates TO users regarding the status of their applications, matches, AND any relevant communications from participating companies.
- FR15. A feedback mechanism SHALL BE integrated INTO the platform, allowing users TO PROVIDE reviews AND ratings based on their experiences during the exchange.
- FR16. IF users agree to the provision of the service and the provisions of the contract, THEN the platform SHOULD provide a confirmation by means of a terms and conditions button selection.
- FR17. AFTER the user logs on to the platform, THEN platform SHALL ALLOW users and/or candidates TO SEARCH AND APPLY TO job openings and/or talent exchange available on the platform.
- FR18. DURING the time of consolidation of a service, the platform SHALL ALLOW for an evaluation system in which companies will determine the knowledge of the candidates through tests, interviews and/or projects.

3.3. Usability requirements

- WHEN navigating the platform, it SHOULD BE intuitive and simple, with a logical structure consistent with current platform models.
- DURING THE USE of the web site the design SHALL MINIMIZE the occurrence of errors by users, through clarity of instructions, prevention of undesired actions and ease of correction in case of errors.
- WHILE navigating within the system, the platform SHALL ALLOW users to discover new features and options easily.
- DURING USE of the platform design elements, such as buttons, menus and colors, SHOULD BE consistent throughout the application or website so that users can anticipate behavior.

- WHILE browsing the web page the response time of the system to the user's actions SHOULD BE fast and satisfactory, avoiding long loading, waiting or processing times.

3.4. Performance requirements

- The TalentSwap system SHALL RESPOND to user login requests WITHIN 3 seconds under normal load conditions.
- Profile pages on TalentSwap SHALL LOAD in under 2 seconds on average, ACROSS different devices and browsers.
- The TalentSwap platform SHALL SUPPORT a minimum of 200 simultaneous user sessions DURING peak usage hours.
- TalentSwap SHALL ACHIEVE a minimum uptime of 99.5% per month, EXCLUDING scheduled maintenance windows.
- The system SHALL SUPPORT a minimum of 50 concurrent user registrations and logins WITHOUT performance degradation.

3.5. Logical database requirements

- All user profiles in the database SHALL HAVE a unique email address to ensure data integrity AND prevent duplicate accounts.
- The system SHALL VALIDATE user input against predefined data validation rules BEFORE storing it in the database.
- Passwords stored in the database SHALL BE encrypted using industry-standard encryption algorithms TO protect sensitive user information.
- TalentSwap administrators SHALL HAVE the ability to query user data stored in the database TO generate reports AND analyze user activity.
- Indexes SHALL BE created on columns used in search and filtering operations TO improve query execution times AND minimize database load.

3.6. Design constraints

> Integration with Existing Human Resources Systems:

The platform must be compatible and integrate effectively with existing human resources systems in participating companies. This limits design options, as the interface and functionality must align with pre-existing structures and technologies.

> Regulatory and Regulatory Compliance:

The platform must comply with labor regulations and data protection regulations in the jurisdictions where it operates. These restrictions impose immovable limits on how sensitive data is managed, stored, and shared, directly influencing security and privacy design.

> Scalability to Handle Sustained Growth:

The platform must be scalable to handle sustained growth in users and vacancies. This restriction limits design options, as the architecture and infrastructure must be prepared to scale without significant performance degradation.

> Security Requirements:

Data security is a fundamental constraint. The platform must implement robust security measures, such as end-to-end encryption and authentication protocols, to protect sensitive user and business information.

> Compatibility with Technological Diversity:

Since participating companies may have a variety of technological environments, the platform must be compatible with different devices and operating systems. This imposes restrictions on the design of the user interface and user experience.

> Clear Documentation for Integration:

The platform should provide clear and complete documentation to facilitate integration with other applications and services. This restriction influences API structuring and the availability of detailed information to third-party developers.

These design constraints are intended to guide the development of Talent Swap, ensuring that the system complies with external standards, regulations, and project-specific limitations.

4. Video

https://youtu.be/EnxP_N8Gv50?si=UfVoK9r5GDL9XSLE

5. Project management

Github Repository

Pages 8

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▸ Weekly Meetings

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```
https://github.com/JeroCardona/Talent-Swap.wiki.git
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