CHALLENGE

S4L

Entregable 3

Etapa 1 - Actividad 3

DESIGN AND ARCHITECTURE OF THE PLATFORM

Objectives: To match the design and architecture of the platform with the characteristics to be developed in the participants.

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Objectives

Matching the design and architecture of a platform with the characteristics of the participants requires a systematic approach. The first step is to thoroughly understand the participants who will be using the platform. This includes gathering information as well as assessing their technical expertise and familiarity with similar platforms. By understanding the participants' background and context, you can design a platform that caters to their specific needs. Once we currently have a clear understanding of the participants, it's crucial to identify their needs, goals, and objectives. This involves conducting user research to determine what they aim to achieve by using the platform. Are they looking for a specific functionality, seeking information, or trying to accomplish certain tasks? By gaining insights into their goals, you can tailor the design and architecture to support their objectives effectively.These aspects of the platform development were achieved in the previous activity, in wich we performed a need analysis with stakeholders.

Adopting a user-centered design approach is essential in matching the platform's design and architecture with the participants' characteristics. This means involving the participants in the design process through surveys, interviews, and usability testing. By actively seeking their feedback, we will understand their preferences and expectations. Incorporate their insights into the design decisions to ensure the platform is intuitive and user-friendly. We will co-design by future interaction with the prospect users.

Usability and accessibility should be key considerations when designing the platform. Aim to create an interface that is easy to navigate, with clear and intuitive interaction patterns. The platform should be accessible to a wide range of participants, including those with disabilities. Follow established accessibility guidelines to ensure that users with visual, hearing, or mobility impairments can fully engage with the platform.

Personalization and customization options can greatly enhance the participant's experience. Provide features that allow participants to personalize their settings, preferences, and layouts within the platform. This flexibility empowers them to tailor the platform to their individual needs and preferences, leading to higher engagement and satisfaction. This component will be achieved by creating a simulator generator, as well as other adaptations, for example, use of avatars, different profiles, etc.

The design and architecture should also be scalable and flexible. Anticipate potential growth in the number of participants and ensure the platform can accommodate increased demand without compromising performance. Additionally, plan for future enhancements and updates to adapt to the evolving needs of the participants and technological advancements.

If the platform needs to integrate with existing systems or tools, prioritize seamless integration. Consider compatibility, data exchange, and security requirements to ensure a smooth interaction between the platform and other relevant systems. A well-integrated platform improves efficiency and streamlines workflows for participants.

Security and data privacy are paramount considerations. Implement robust security measures to protect participant data from unauthorized access or breaches. Comply with relevant data protection regulations and clearly communicate the platform's security features and privacy policies to instill trust among participants.

Optimizing the platform's performance is crucial to provide a seamless user experience. Minimize page load times, ensure efficient data processing, and ensure the platform has sufficient server capacity to handle user demands. A responsive and high-performing platform enhances user satisfaction and encourages continued usage.

Lastly, adopt a mindset of continuous improvement. Establish mechanisms to gather ongoing participant feedback and monitor platform usage analytics. Regularly assess the platform's effectiveness in meeting participant needs and identify areas for improvement. By continuously iterating on the design and architecture, you can ensure that the platform remains aligned with the participants' characteristics and evolving requirements.

In summary, by understanding the participants, identifying their needs and goals, adopting a user-centered approach, prioritizing usability and accessibility, allowing personalization,

planning for scalability and integration, ensuring security and privacy, optimizing performance, and continuously improving, you can create a platform that effectively matches the design and architecture with the characteristics of the participants.
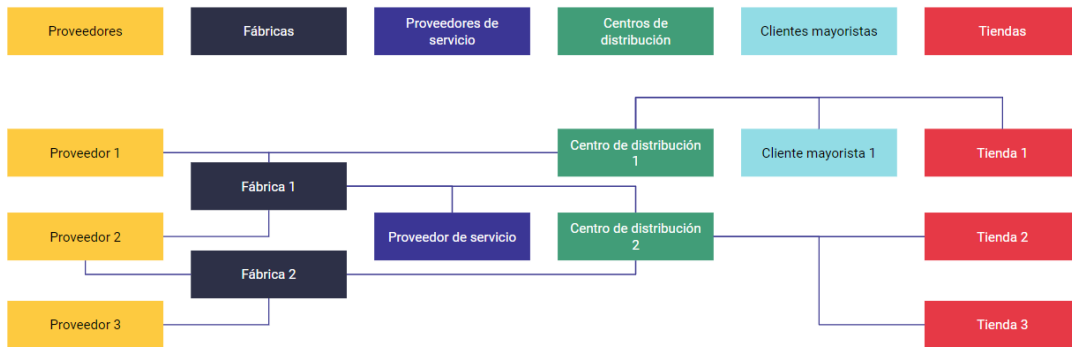
Proposed S4L Architecture

The models within the system are described below
Relations (logistical links)

- users
- Equipment
- Games
- games
- Machine types
- Products
- wholesalers
- Stores
- Center of distribution
- service providers
- factory production
- Storage
- Factories
- Transportation
- Logistics links matrix
- Logistics Link (Transp Order List)
- Supplier discounts
- Suppliers
- Raw Materials

The structure of the logistics network can be seen in the following figure.

Red logística

| Proveedores | Fábricas | Proveedores de servicio | Centros de distribución | Clientes mayoristas | Tiendas |

Proveedor 1 — Fábrica 1 — Centro de distribución 1 — Cliente mayorista 1 — Tienda 1

Proveedor 2 — Proveedor de servicio — Centro de distribución 2 — Tienda 2

Proveedor 3 — Fábrica 2 — Tienda 3

Features Characteristics

Producto: características

Atributo
Nombre
Precio

Proveedores: características

Atributo
Materia prima
Precio
Matriz de descuentos
Matriz de probabilidad de entrega
Matriz de formas de pago
Caducidad
Calidad

Fábricas: características

Atributo
Dimensión de almacén de materia prima
Costo unitario
Precio y dimensión de transporte (Camión Grande y Camión Pequeño)
Matriz de probabilidad de entrega
Matriz de formas de pago

Almacenes: características

Atributo
Capacidad
Tipo de almacenamiento
Unidad asociada a fábrica

Centros de distribución: características

Atributo
Productos
Capacidad de almacén
Número de unidades por semana
Costos de operación
Precio y dimensión de transporte (Camión Grande y Camión Pequeño)

Tiendas: características

Atributo
Productos
Capacidad de almacén
Número de unidades por semana
Costos de operación
Distribución de la demanda
Distribución de la oferta

Equipo de trabajo

Rol	Personas
Gestión de proyectos	1
Líder técnico	1
Desarrollador	2

Tabla de posiciones

Cada juego contendrá su tabla de posiciones que le permita comparar a los jugadores y su rendimiento alcanzado a través de su "score".
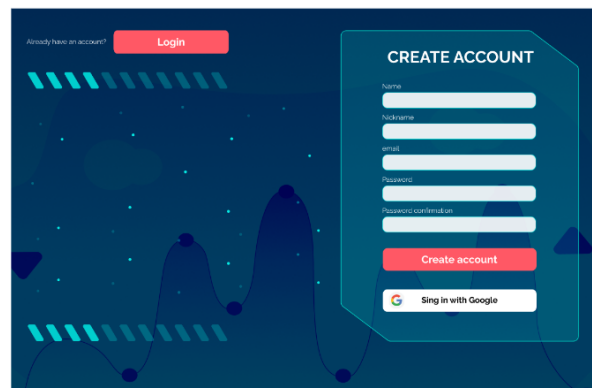
Tecnologías del sistema

El proyecto se desarrollará a través de las siguientes tecnologías:
- Backend
    - API a través de Laravel
        - Base de datos con MySQL
    - Frontend implementado con Laravel
- Editor de juegos
    - Frontend: Unity 3D
        - Se comunica a través del API con el backend
- Partidas
    - frontend: Unity 3D
        - Se comunica a través del API con el backend

State of the advance

The activities described in the documentation are related to the development of the S4L project. The project is a web-based game that allows users to manage a factory. The activities include:
- Creating a user interface for the game
- Developing the game logic
- Storing game data in a database

- Allowing users to login and register
- Showing a list of serialized games
- Storing game serialization inside the database
- Displaying in-game operational data
- Showing an in-game product list
- Showing store node store status
- Moving products between different storages
- Allowing users to create and edit company properties
- Allowing users to create and edit game properties
- Calculating the cost of production
- Calculating the profit of the company
- Calculating the depreciation of the company's assets
- Calculating the investment rate of the company
- Calculating the weekly storage price
- Calculating the annual investment rate
- Calculating the initial bank amount
- Calculating the annual depreciation

The project is still under development, but it is expected to be completed in the near future.