Universidad Nacional de Colombia - Sede Bogotá
Facultad de Ingeniería
Ingeniería de Software II
Functional and non functional requirements

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Business Rules:

1. Only registered and authenticated users can access all system functionalities.
2. Each user must complete their profile before gaining full access to the system's functionalities.
3. Each publication belongs exclusively to the seller user who created it; no other user may edit or delete that publication.
4. A seller user may only delete publications that are active (either available or sold out).
5. Publications must contain clear and truthful information; the use of inappropriate language or false information is not allowed.
6. There must be an administrator who can set the status of publications that do not comply with rule 5 as private or not visible to other users.
7. Users may view the profiles of other seller users but may not edit information belonging to others.
8. Agricultural data refers to information collected by users about their own crops, including crop type, cultivated area, produced quantity, fertilizer usage, and irrigation methods.

Business Roles

1. User: Any person authenticated on the ISIS platform whose role is to sell, search for, or acquire products..
2. Administrator: A person registered on the ISIS platform who can add climate alerts and upload information related to agricultural statistics and trends.

Requirements Elicitation:

- **Functional Requirements:**
    - The system allows user authentication via email using Google, for users belonging to the agricultural sector in Colombia.

- The system must allow any user with an active session to log out.
- Users can create product sale listings including, at a minimum: title, description, price, quantity for sale (both numeric value and unit type), and category. Images are optional and limited to a maximum of three (3).
- Users can edit their active sale listings, with the ability to modify all product information fields (title, description, price, quantity for sale, and category).
- Users can explore their own sale listings, allowing them to view available product images and general information (price, name, and description).
- Users can delete their own active sale listings.
- Users can mark their own active products as sold when they are no longer available.
- Users can edit their profile information, including location (department and municipality) within Colombia, description or bio, and phone number.
- Users can view the complete product catalog along with product details and seller user information.
- Users can filter product searches by category (Agriculture, Livestock, and Transport), location (department), price (ascending or descending), and name.
- Users can browse and view profiles of all seller users (i.e., users with at least one active and available sale listing) to consult their available products.
- Users can filter seller profiles by name.
- An administrator must be able to publish climate alerts that include: affected area or department, alert type, and alert content.
- Users must be able to receive alerts based on the location (department and municipality) saved in their profile, containing at least the alert name, alert type, and alert description.
- Users must be able to enable or disable the reception of climate alerts from their profile.
- The system must validate that user-entered data through the data collection panel is coherent and consistent, including:
  - Preventing invalid numeric values (e.g., negative numbers for quantities, areas, or prices).
  - Verifying that required fields are completed before allowing form submission.
  - Validating data formats according to their type (e.g., valid dates, text without special characters in names, numeric values with correct units).
  - Enforcing maximum character limits for text fields, for example, a maximum of 30 characters for publication titles.
- The system will include a user tab where information of interest about the Colombian agricultural market can be viewed, including price trends by product, harvest products, and supply and demand volumes.
- The system must allow users to register their agricultural data, following business rule (8), through a form within the user panel.
- The system must anonymize user-submitted data before making it publicly visible, removing all references to user identity.
- A user must be able to view the agricultural data records that they have created.
- A user must be able to edit their own agricultural data records according to the fields mentioned in business rule (8).
- A user must be able to delete their own agricultural data records.

- **Non-Functional Requirements:**
  - **Performance:**
    - The system must allow login via Google within a maximum of 15 seconds under normal network conditions.
    - Main pages (Products, Sellers) must fully load within a maximum of 10 seconds.
    - Catalog searches and filters must return results in less than 5 seconds.
  - **Availability and Reliability:**
    - The system must be available 99.9% of the time on a monthly basis.
  - **Seguridad:**
    - The system must use OAuth 2.0 authentication for integration with Google accounts.
    - A security token must be used to ensure that users comply with their assigned role (seller or buyer) to perform the permitted functionalities.
    - The principle of least privilege must be applied, limiting both user and administrator permissions to what is strictly necessary.
    - The web application must implement secure cookie settings using attributes such as HttpOnly, Secure, and SameSite to reduce the risk of cookie theft or manipulation (e.g., XSS or CSRF attacks).
    - The database must store sensitive user information (such as passwords or tokens) using secure hashing (e.g., SHA-256 or higher) combined with salting to protect against dictionary or rainbow table attacks.
    - The site console and runtime environment must be configured to prevent code or command injection by unauthorized users.

  - **Usability:**
    - The interface must comply with standard UX/UI best practices.
    - Error messages must include, at a minimum, the type of error, the error content, and clearly indicate where the error occurs.
    - The graphical interface must be responsive, adapting to both desktop and mobile devices.

User Story Map

Introduction

Given the following Product Backlog for the ISIS web system oriented toward the Colombian agricultural sector, the working group must perform estimation and software development planning activities under the SCRUM framework.

Epics

- **Epic 1**: Authentication and account management
- **Epic 2**: Agricultural product catalog and exploration
- **Epic 3**: Product publication and agricultural content

- **Epic 4**: Climate alerts
- **Epic 5**: Registration and management of agricultural data for farmers
- **Epic 6**: Visualization of agricultural data for all users
- **Epic 7**: Agricultural productivity reports and analysis

Note: The project scope for the class delivery includes only the first four Epics; the remaining ones are included as part of the business idea.

Target Audience:

- User: A person authenticated on the platform with the ability to sell and buy products, as well as view statistics and climate alerts.
- Administrator: A person responsible for managing climate alerts and supervising system information.

User Stories (Detailed)

Below are the user stories corresponding to each Epic.

EPIC #1: Authentication and Account Management.
User Story #1 **As a** user **I need** to register using my Gmail account and validate a CAPTCHA **So that I can** access the system quickly and securely.
User Story #2 **As a** registered user **I need** log in using my Gmail account **So that I can** access the system functionalities according to my role (Seller or Buyer).
User Story #3 **As a** registered user

I need create my profile **So that I can** complete my basic information within the system.
User Story #4 **As a** registered user **I need** to edit my profile **So that I can** update my personal information when necessary.
User Story #5 **As a** registered user **I need** to delete my profile **So that I can** unsubscribe from the system whenever I wish.
User Story #6 **As a** registered user **I need** to be able to log out of the platform **So that I can** exit the system securely whenever I choose.

EPIC #2: Agricultural Product Catalog and Exploration
User Story #1 **As a** user **I need** to view the complete agricultural product catalog **So that I can** learn about the options available in the market.
User Story #2 **As a** user **I need** to filter products in the catalog by category, location, price, or name **So that I can** quickly find the product I am looking for.

User Story #3 **As a** user **I need** to view product details **So that I can** I can know the specific information about a product and contact the seller to purchase it.
User Story #4 **As a** user **I need** to view the profiles of other seller users **So that I can** learn about the seller's information and the products they offer.
User Story #5 **As a** seller or buyer **I need** to filter the search for sellers **So that I can** find a specific seller by name.

EPIC #3: Product Publishing and Agricultural Content.
User Story #1 **As a** user **I need** to create listings to promote products or shipments **So that other users** can learn about what I offer and contact me to purchase.
User Story #2 **As a** user **I need to** edit my active listings **So that I can** correct or update information when necessary.
User Story #3

As a user **I need** to delete my active listings **So that I can** remove products that are no longer available.
User Story #4 **As a** user **I need** to view all my listings **So that I can** review their status and details.

EPIC #4: Climate Alerts.
User Story #1 **As a** moderator **I need** to create and publish climate alerts by department in Colombia **So that I can** notify users in specific regions about climate changes.
User Story #2 **As a** user **I need** to enable or disable the reception of climate alerts **So that I can** decide whether I want to receive notifications based on my location.
User Story #3 **As a** user **I need** to receive climate alerts in my region **So that I can** make informed decisions about my crops or purchases.

EPIC #5: Agricultural Data Registration and Management for Farmers.
User Story #1

As a user **I need** to register data about my crops (type, area, fertilizers, production, irrigation) **So that I can** keep track of this information within the system.
User Story #2 **As a** system **I need** to anonymize the data registered by farmers **So that their** identity is not revealed when the data is made public.
User Story #3 **As a** user **I need** to view the agricultural data I have entered **So that I can** review it later.
User Story #4 **As a** user **I need** edit my agricultural records **So that I can** correct incorrect information.
User Story #5 **As a** user **I need** delete agricultural records created by me **So that I can** remove unwanted information.

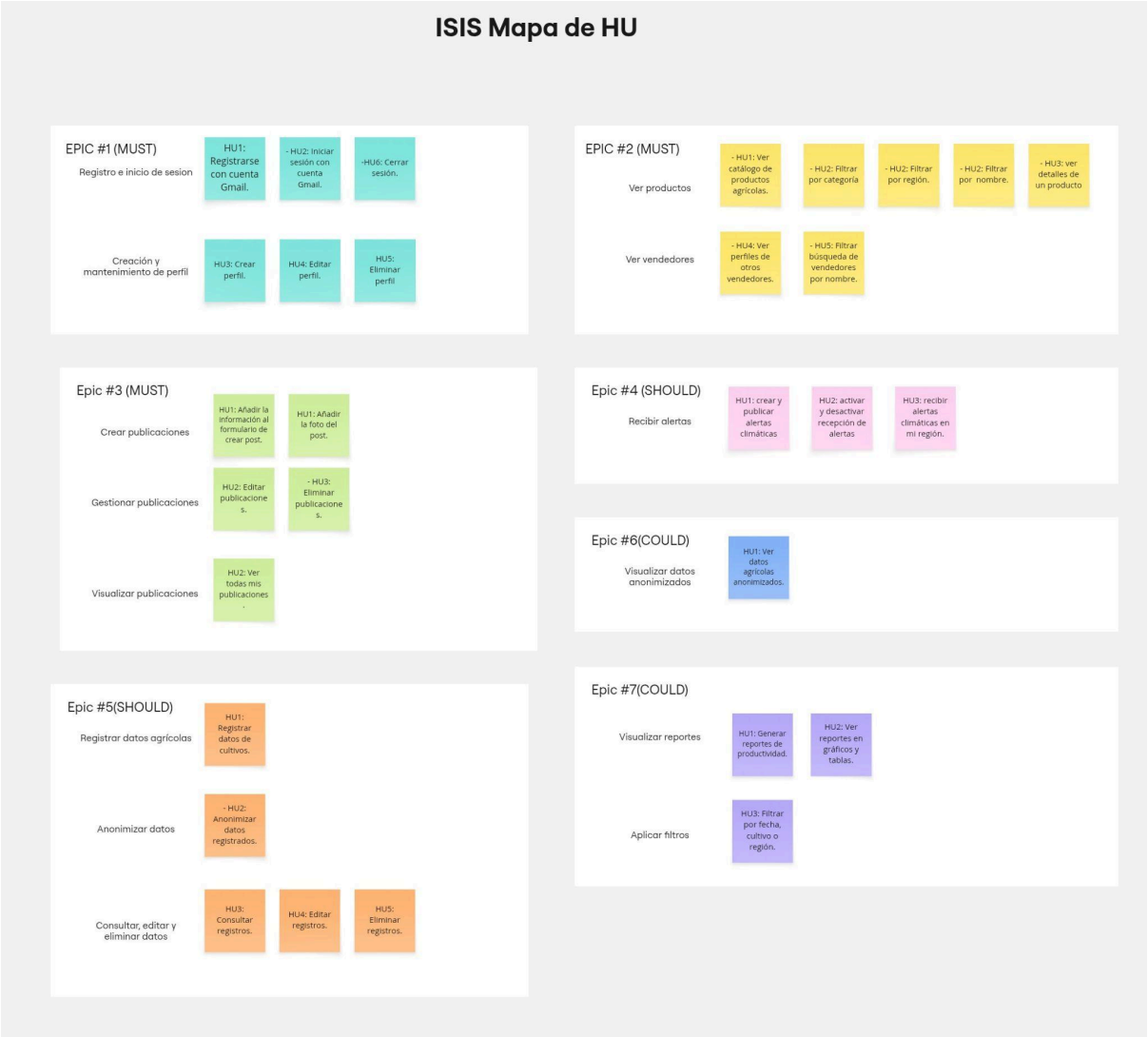
EPIC #6: Agricultural Data Visualization for All Users.
User Story #1 **As a** user **I need** to view anonymized agricultural data

So that I can understand trends in the agricultural sector.

EPIC #7: Agricultural Productivity Reports and Analysis.
User Story #1 **As a** user **I need** view agricultural productivity reports **So that I can** analyze performance by crop.
User Story #2 **As a** user **I need** view reports in the form of charts and tables **So that I can** interpret the information more easily.
User Story #3 **As a** user **I need** to apply filters by date, crop, or region in the reports **So that I can** perform specific analyses.

- **User Story Map Graph:**

[Mapa de historias de usuario ISIS]


ISIS Mapa de HU
EPIC #1 (MUST)
Registro e inicio de sesion
HU1: Registrarse con cuenta Gmail.
- HU2: Iniciar sesión con cuenta Gmail.
-HU6: Cerrar sesión.
Creación y mantenimiento de perfil
HU3: Crear perfil.
HU4: Editar perfil.
HU5: Eliminar perfil
EPIC #2 (MUST)
Ver productos
- HU1: Ver catálogo de productos agrícolas.
- HU2: Filtrar por categoría
- HU2: Filtrar por región.
- HU2: Filtrar por nombre.
- HU3: ver detalles de un producto
Ver vendedores
- HU4: Ver perfiles de otros vendedores.
- HU5: Filtrar búsqueda de vendedores por nombre.
Epic #3 (MUST)
Crear publicaciones
HU1: Añadir la información al formulario de crear post.
HU1: Añadir la foto del post.
Gestionar publicaciones
HU2: Editar publicaciones.
- HU3: Eliminar publicaciones.
Visualizar publicaciones
HU2: Ver todas mis publicaciones .
Epic #4 (SHOULD)
Recibir alertas
HU1: crear y publicar alertas climáticas
HU2: activar y desactivar recepción de alertas
HU3: recibir alertas climáticas en mi región.
Epic #6(COULD)
Visualizar datos anonimizados
HU1: Ver datos agrícolas anonimizados.
Epic #5(SHOULD)
Registrar datos agrícolas
HU1: Registrar datos de cultivos.
Anonimizar datos
- HU2: Anonimizar datos registrados.
Consultar, editar y eliminar datos
HU3: Consultar registros.
HU4: Editar registros.
HU5: Eliminar registros.
Epic #7(COULD)
Visualizar reportes
HU1: Generar reportes de productividad.
HU2: Ver reportes en gráficos y tablas.
Aplicar filtros
HU3: Filtrar por fecha, cultivo o región.