Software Engineering

Winter Semester 2019/2020

Project 28: Excavation of Caunus

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The Requirements Specification:

This project is based on collection of archaeological data, that has been excavated from Caunus. The current system is purely paper based and there are rooms full of artifacts that have not been accounted for. Hence, the development of a database system and an interactive user interface will eliminate the paper trail and provide access for future research on current findings. In addition, the user interface will be used for data entry by privileged users. The user interface can also play the role of a searching tool for all objects that have uploaded to the database, this will help in time reduction and efficiency for other archaeologist interested in the inventory at hand.

Objectives

The aim of this project is to develop a web app to assist the ongoing excavation of Caunus, Turkey. It must be able to store different kinds of objects, from small finds like ceramic sherds to large buildings like temples, found during the excavation. In addition, the web app provides a pleasant user interface to work with.

Criteria

Must-Have Criteria

/M1/ Create a Database to store the different kinds of objects in Caunus together with their associated information.

/M2/ Area, building, trench, findings and finds are the different tables in the Database

- /Ma/ Area: the name of the excavation zone
- /Mb/ Building: the ruins found on the excavation zone. Its fields are described in the product data section.
- /Mc/ Trench. Its fields are described in the product data section.
- /Md/ Findings: fine-grained contexts where the actual item (called finds) are found. It is associated either with a building, a trench, or an area. Its fields are described in product data section.
- /Me/ Finds: the actual items found on the excavation zone. Its "context" is either a finding, a trench, a building, or an area. Its fields are described in the product data section.

/M3/ Create a website as a frontend to the aforementioned Database.

/M4/ The website is equipped with authentication mechanism based on usernames and passwords. It's explained in the product data section.

/M5/ The website consists of a public homepage and a private page, that users can access after logging in with their user credentials

/M6/ Trench leaders are people who were given the access rights by the superuser. There should be one leader per team who can input data into the database. Trench leaders also have reading privilege.

/M7/ The superuser can grant and revoke user privileges in addition to read and write access to

the database.
/M8/ The superuser gives write privileges to trench leaders
/M9/ The website and the database must have multilingual support (Turkish and English)
/M10/The client will provide the logo, background image and colour scheme for the pages
/M11/ The public main page has to have a calendar with all the Events of interest to the Researchers, an example of the events are conferences. In addition, contact information will be displayed on this page.
/M12/ The public main page must contain a menubar described in product data section.
/M13/ The private main page has provided an Access link to the Database
/M14/ Finds will be visualized based on their coordinates in a Maps-component similar to Google maps. We are going to use an application program interface (API) that allows inputs of coordinates and display the Map with the exact location.
/M15/ Possibility to add information about the monuments on the public page for the customers.
/M16/ Add news section at the public Page, for example news about Events
/M17/ The website has to allow the import and export of different kinds of data

- Add 3D-presentation of finds
- Add 3D-presentation of findings.

/M18/ The trench leaders can delete data from the database but must have permission from the Superuser.

May-Have Criteria

/O1/ Add login for admin from private page to the database.

/O2/ Track the editors of the database

/O3/ Display 3D-files from the database

/O4/Add news section to the private page, for example new discoveries.

Must-Not-Have Criteria

/N1/ Non-admin users cannot manipulate date in the database.

/N2/ The public doesn’t have initial access to the private page and to the database unless granted.

/N3/ The public page must not have access to the database

Product Use

Application Area

The superuser and trench leaders can input data into the database. Students and non-administrative Researchers can only view the Database data.

Target Groups

Archaeological Researchers, Students and anyone who is interested in archaeological Findings and Finds.

Operating Conditions

The product can only be used where there is internet access, to access the database.

Product Functions

Public page

/F10/ The public can access the menu, about us, events, news, history and monuments of Caunus information. (/M11/)

/F20/ The public can access the contact information. (/M10/)

/F100/ Everyone can choose the language between Turkish or English. (/M8/)

Log in

/F30/ Superuser, trench leaders, students and researchers log in from the public page. (/M4/)

Private pages

/F40/ Researchers and students can log in to view the database data. (/M4/)

/F50/ The superuser can give access to the trench leaders. (/M7/)

/F60/ Access users can search via multilevel dropdown menu that displays area, trench, buildings, finds and findings. (/M12/)

/F70/ Images and information can be displayed on items in the database, for example a find from a building. (/M16/)

Database

/F90/ The superuser and trench leaders can input and manipulete data into the database. (/M6/)

Product Data

The client described these fields and has provided a detailed template of products to be stored in the Database

- Trench

/D10/ Name

/D20/ Coordinates (latitude and longitude)

/D30/ Editor

/D40/ Photos and Drawings

/D50/ Profiles

/D60/ 3D Models

/D100/ Date (when the entry was added)

- Finding

/D10/ Name

/D20/ Coordinates (latitude and longitude)

/D70/ Genus/Object

/D80/ Dimensions (length, width, height)

/D90/ Description

/D100/ Date (when the entry was added)

/D140/ Date of the finding

/D40/ Photos and Drawings

/D60/ 3D Models

- Find

/D110/ Inventory number

/D120/ Depository

/D20/ Coordinates (latitude and longitude)

/D70/ Genus/Object

/D130/ Material

/D80/ Dimensions (length, width, height)

/D90/ Description

/D100/ Date (when the entry was added)

/D40/ Photos and Drawings

/D60/ 3D Models

/D150/ Layer

- Building

/D10/ Name

/D20/ Coordinates (latitude and longitude)

/D70/ Genus/Object

/D80/ Dimensions (length, width, height)

/D90/ Description

/D100/ Date (when the entry was added)

/D30/ Editor

/D40/ Photos and Drawings

/D60/ 3D Models

The relation between all the different items is explained below:

- The excavation in always associated to a year or campaign
- Trenches, finds and buildings from the surface are always associated to an area
- There are different types of findings
    - Findings associated to trenches
    - Findings associated to buildings
    - Findings only associated to a specific area
- Trenches always have associated findings, finds or both
- Buildings always have associated findings, finds or both
- There are different types of finds:
    - Finds from the surface: they are always associated with an area
    - Finds without a finding associated: they are only associated to specific trench or building
    - Finds with a connected finding: they are always associated to findings

Users privileges are described below:

- Superuser: Has read and write privileges. Also, can give access to the trench leaders. They can see the public and the private pages.
- Trench leaders: Only one per group, have write and read privileges. They can see the public and the private pages.
- Researchers and the students: They only have the read privilege. They can see the public and the private pages.
- Others: They only can see the public page

User Interface

The user interface is divided into the public homepage and the private page.

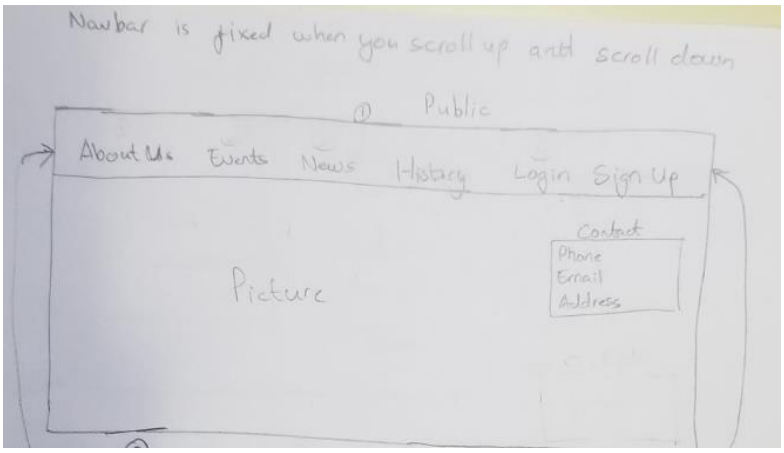
The public homepage has the following characteristics:

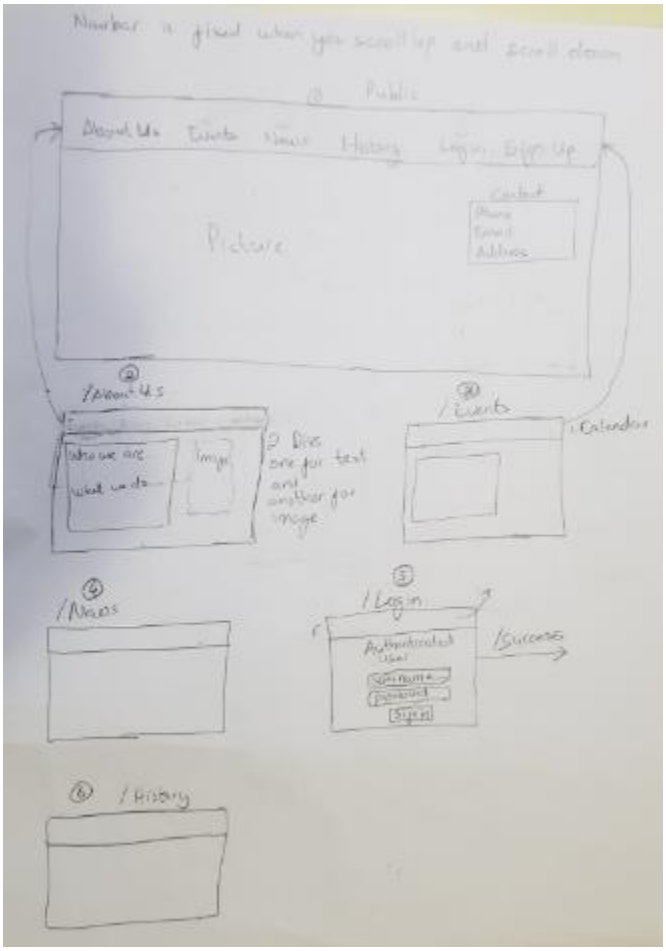
- The logo provided by the client
- The color scheme provided by the client
- A principal image provided by the client
- A menu bar with different choices:
    - Authentication (Login)
    - Description (About us)
    - History and monuments of Caunus
    - A calendar with the different events
    - News

Only the registered people have access to the private main page.

These images portray the designs of the public page with all the different associated HTML pages.

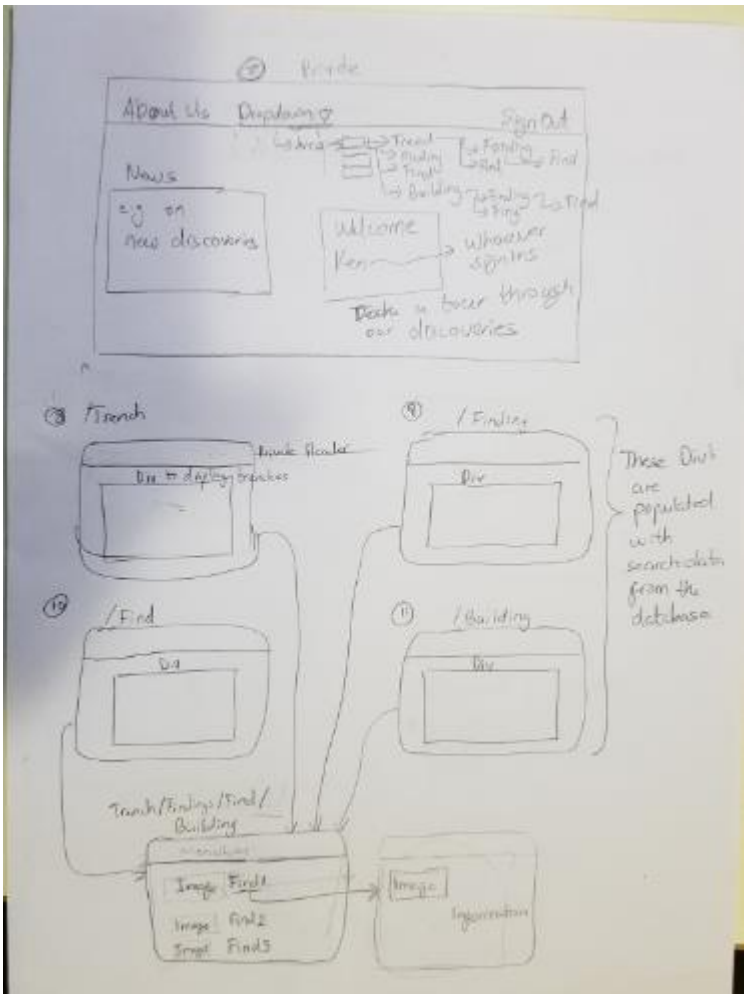
This image portrays the public page where you can find the main picture as background and the contact on the right-hand side. In addition, the top displays the menu bar which links to the respective information pages.



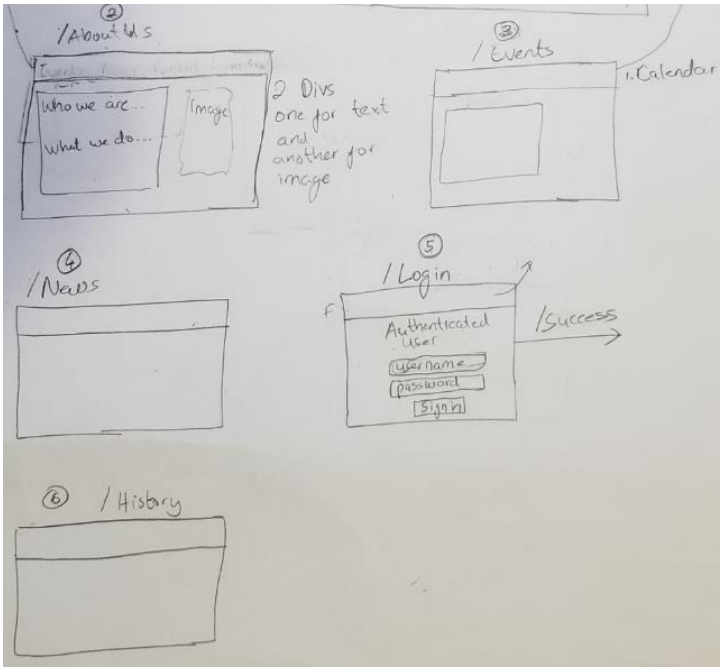


Through the Login Link provided on the Public page, privileged users are directed to the Login page where they are expected to enter their credentials (Username and password), if the information provided is correct, they then can access the private page. This image portrays the Private page with all the associated pages.

Here is a link to enable the display of the different data in the Database. The Link is designed as a Dropdown with the Area, Trench, Building, Findings, Finds to the last linked Find



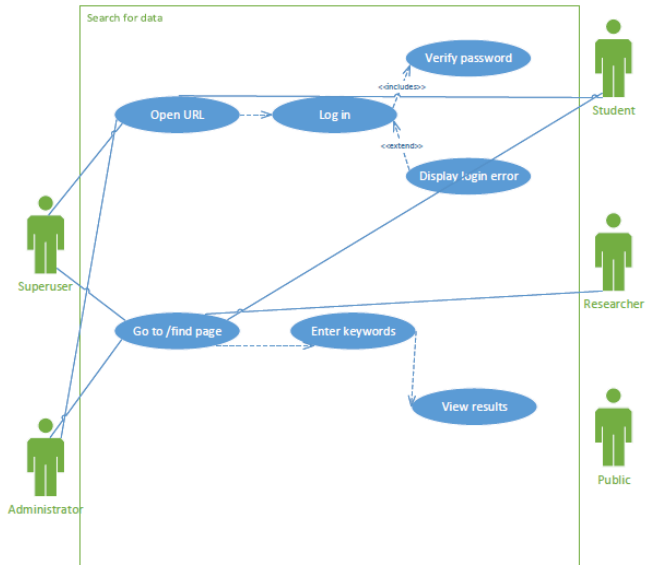
Each Page will have an image of each of the categories and all its descriptions, we borrow the idea of a shopping site for these pages.



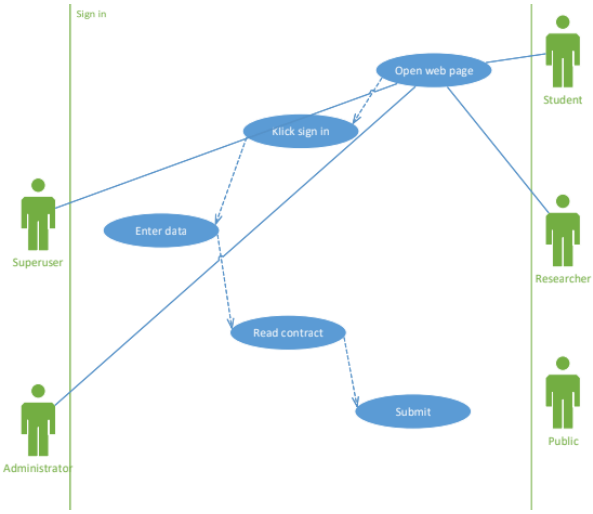
Use Case Diagram

The use case diagram is divided in 4 different cases:

1. Search for data: students, researchers, trench leaders (administrators) and the superuser can search for data. Using the Login provided on the Public page, they can be directed to the Login page where they can enter their credentials (Username and password). If credentials provided are wrong, access is denied, but if it they are correct, access is granted. Using the catalog dropdown menu, they can choose a given category, for example Find to be directed to the Find page. On that page, they can search for a specific Find using key words and they will be directed to the last page with a specific Find, its image and a description.



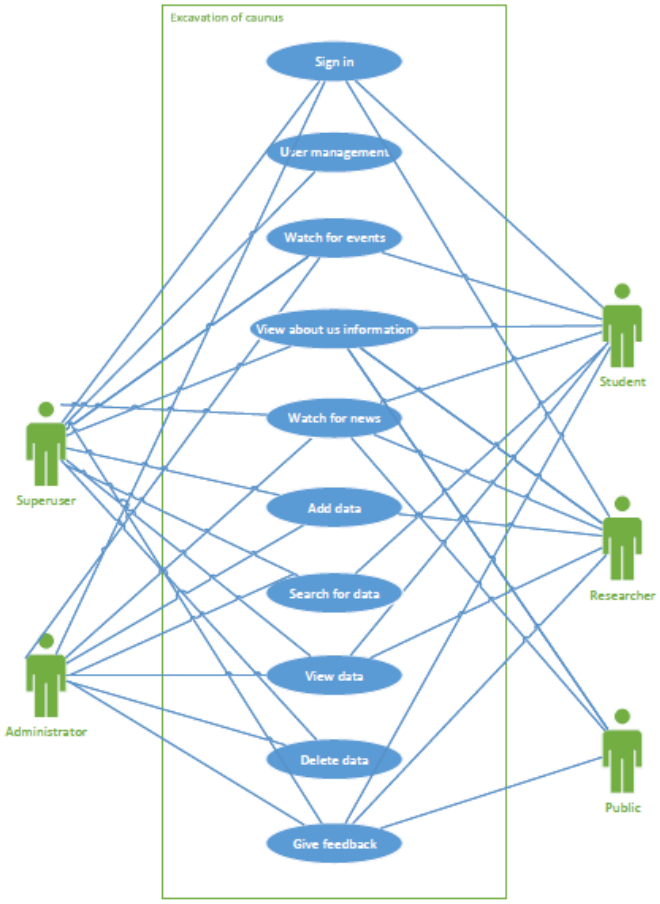
2. Sign in



The Superuser grants access to chosen Researchers and or Students who are given Sign in Credentials (Username and password). A Superuser, researcher or Student opens the Caunus Webpage, clicks the Sign in, goes to the sign in page, enters sign in credentials, is redirected to the private page and here they can retrieve, enter, read and submit data.

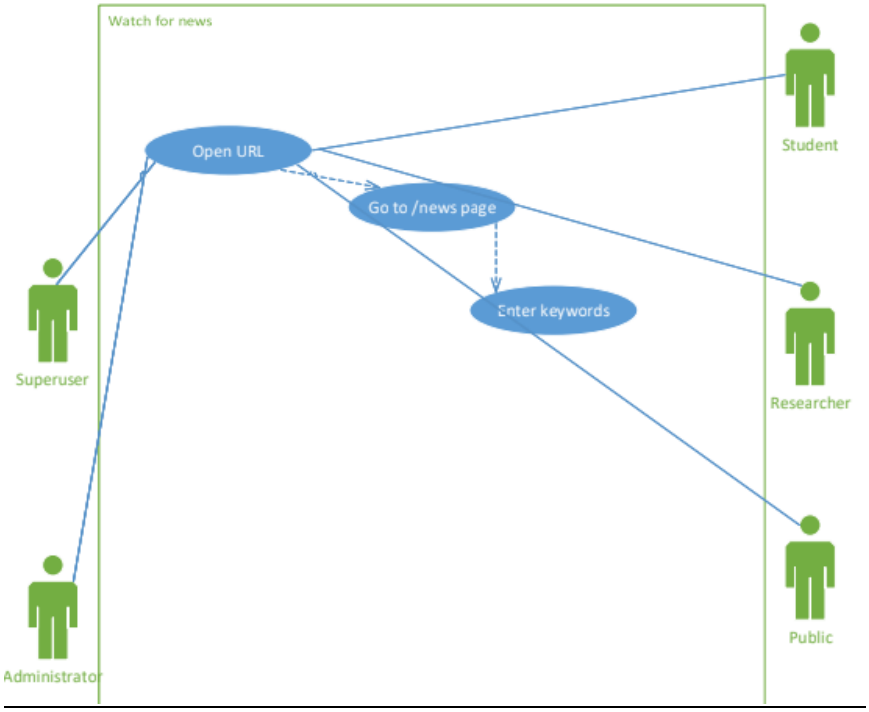
3. View the data

Public users have restricted view of the data as compared to the Superuser, trench leaders, researchers and students. The public has access to view the news, events and about us. The Students and Researchers have more access to the Excavation data as compared to the Public. for they can have sign in privileges. The Superuser and Administrators have all the privileges that both the Public, Students and Researchers have and can also do all the necessary data manipulations like delete, add and edit (/M18/). This is portrayed in the use case below;



4. Watch for News

Here all the Users can view the news. They can open the Caunus Webpage, go to the News page, using the Search Field; they can enter Keywords and view all the news at their disposal



Technical Product Environment

Hardware

Any device with accessibility to the web.

Software

a. Django Framework: Authentication of users who can input data into the database, and the access to the database information. Trench leaders can input data from the user interface into the database.

b. Python: For designing the backend

c. HTML: For designing the frontend

d. CSS: For designing the frontend

e. Javascript: For designing the frontend and page functionalities

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