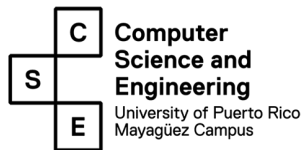University of Puerto Rico Mayaguez

Department of Computer Science and Engineering

INSO4115-050 Software Requirements

Art Walk Proposal

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Prof. Marko Schütz Schmuck

Informative Document

I. Name, Place, Date

    A. Art Walk, University of Puerto Rico - Mayaguez Campus, 8/Febrero/21

II. Partners

    A. Developers and Roles (Tentative)

        a. Ebdiel J. Roman Feliciano

            i. Documentation

        b. Richard Rivera Paulino

            i. Documentation

        c. Diego Alejandro Rodríguez Del Río

            i. Front-End Developer

        d. Francisco Vera Orengo

            i. Back-End Developer

        e. Rey Cotto Perez

            i. UX & UI Designer

            ii. Front-End Developer

        f. Alejandro Ruiz Almodóvar

            i. Back-End Developer

        g. Jorge Ortiz Ramirez

            i. Back-End Developer

    B. Clients

        a. The organizers of the In-Person ArtWalk

III. Current Situation

    A. A lot of small time artists make their living, or atleast support their living, through selling their pieces of work. Although online shopping is more popular than ever, websites like Etsy are so oversaturated that getting found can understandably be very difficult at times. So most of these local artists depend on local activities to get found and get some business. One such activity is the Rincon, PR Artwalk. The Artwalk was an activity that would take place every Thursday in the town square, in which local artists would come together to host booths where they would showcase and sell their different works. The activity would also have live music performed by local

musicians, food booths and a general sense of the community coming together. As one would expect, the activity has been in an indefinite pause since COVID-19 first struck in March of 2020. The event is simply too big a gathering to justify holding it during these trying times. Not only does this mean we have lost something that would regularly bring the community together, we also lost probably one of the best sources of income that these artists would have. As of now it has become increasingly difficult to find a solution for both of these issues.

IV. Needs & Ideas

    A. Needs:

        1. Local artists need exposure and have a way to directly interact with their community.

        2. Artists need to be able to sell their products.

        3. Bring the community together when it feels more far apart than ever. feedback

    B. Ideas

        1. The idea is to be able to satisfy the needs of our clients, so by creating a web application we can develop an environment for artists that allows them to be promoted and sell their work.

        2. We also would like to consider all types of art, therefore we'd like to eventually be able to add some sort of streaming/audio-video uploading service so musical artists can also be benefitted by this web app.

V. Concept and Facilities

    A. Concepts- The following solution concepts were selected for the app which are the following:

        1. Provide the user to search for artworks booths, category and artist/creator.

        2. Provide the artists exposure to a wider audience for their artwork/craft as well as to be able to sell them.

        3. Provide the artists with a direct way to connect and interact with their community.

        4. Present an attractive graphical user interface that will contain, but is not limited to, a front page, searching page, and information page for the event.

        5. Provide an interaction between artists and attendees through a livestream.

    B. Facilities

        1. We will utilize Django as our technology stack/framework as it allows us to easily create a working prototype of our application. Due to this, it allows us to focus more on features and core domain requirements rather than having to immediately deal with secondary things, like front-end.

        2. Django is also scalable so we don't have to worry about the application not being able to handle heavy traffic and large quantities of information.

VI. Scope & Span

    A. The scope is the promotion for the different arts and craft for the Art Walk.

    B. The span is the promotions on our system to be considering artists' needs and the marketability of their creations.

VII. Synopsis

    A. This domain came into existence because of the necessity that many artists are going through now that art expositions are few and far between due to the threat that is COVID-19. Regardless of COVID-19, though, is the fact that many businesses are moving into e-commerce as the internet becomes more and more accessible, and we believe that the art industry has the capability to make this change as well.

VIII. Assumptions and Dependencies

    A. Assumptions:

        1. It is assumed that the development team has the required knowledge and programming skills to work with Python, Rest APIs, DataBases and Frameworks in order to finish the project.

        2. It is assumed that the developers have access to the necessary resources to complete the project.

3. It is assumed that the client is ready and willing to consider possible business process reengineering of the current operations of the Domain.

B. Dependencies:

1. We depend on Art Walk to participate and use our systems.

2. We depend on artists and attendees to participate and use our systems.

3. We also depend that non-registered users will also utilize the end product.

4. The quality of the final product depends on the fulfilment of the assumptions.

IX. Implicit/Derivative Goals

A. Our goals:

1. Help artists to find an audience easier by having more recognition.

2. Deployment of the system should alleviate the current issue posed to Art Walk by the pandemic.

3. Provide a system that also helps the attendees to discover artworks they are willing to buy.

4. Deployment of a Search System that allows attendee users to search booths that contains arts and crafts, by, author/creator, and category.

5. Provide artists with tools that they can use to promote their pieces.

Descriptive Document

I. Rough Domain Sketch

A. For the domain, the main goal is to help re-establish the Rincon Artwalk by allowing it to be hosted online. This way, we can help the artists who frequented the artwalk regain their clients (**attendees**) as well as further bolster their economic state via promotion and **e-commerce.** Each artist will have their own online "**booth**" in which they can display their art to attendees as well as a way to hold any individual piece of art for any possible future sales. The booth also allows for **livestreams**, meant to help artists clear up attendee's doubts regarding their artworks. Another aspect we wish to include

is a livestream for musicians so that they can play music for the attendees and gain exposure for their art this way.

II. Narrative

    A. Advertising is an important role in what we are trying to accomplish with this web application. It is because of this, allowing such an event to be held online may be beneficial not only to the attributed **artists** but also to the **attendees** in this much needed time of self care. We strive to accomplish this by implementing a web application that has the capacity to not only display artisan's **artworks**, but to provide the ability to sell these as well. These artworks will be displayed by individual artist's **booths**. Within these booths, artisans have the ability to display their artwork using images, as well as adding a brief text description for said artwork. Attendees will interact with artisan's if they are interested in purchasing a specified artwork found in this artisan's booth.

    B. This web application will perform basic CRUD operations such as creating new users, removing existing users, and updating user's information. When using this web application, users are faced with the choice of two types of accounts: artisan account or attendee account. Artisan accounts may set up their booths and list their artworks. Attendees can then enter the artisan's booth and view this artisan's artwork. If an attendee has doubts regarding a certain artwork, artisans can set up a live stream in order to facilitate the communication between attendee and artisan, perhaps leading to greater sales of their artwork. In order to facilitate content discovery, end users can search for booths either by a specified name or by categories, this allows end users to search for content they are most interested in thus leading to more engagement with artisans.

III. Requirements Prescription

    A. User Stories

        1. As an artisan, I'm earning less money than previous years due to less artwork sales. I wish there was a way to reach out to my local community and gain more exposure as an artisan in order to show my artwork and make some sales.

2. As a member of the community, I wish I had a way to support my local artists while growing closer to the people around me in these trying times.

B. Stakeholder Personas

1. Attendee: Kyle Rogers

   a) Demographic:

      (1) I'm a 27 year old tourist visiting Rincón for the first time, and will be staying for the next two months. Back in the US, I worked as a Production Line worker, and was constantly overworked. Since then I quit my job and started travelling as a way to learn about different cultures and am trying to find a sense of community. My hobbies include surfing and I also collect art on the side.

   b) Behaviors:

      (1) Every morning I wake up early and if there are good waves I go out and surf the local surf breaks on my longboard.

      (2) When I'm not surfing, I spend my time hanging around looking for a good time.

      (3) I'm looking to make some friends and join a close-knit local community that is related to my hobbies.

2. Artist: Martin Rivers

   a) Demographic:

      (1) I'm a 40 year old Rincon resident that works as a waiter at a local restaurant earning minimum wage plus tips. I have a child at a middle school level that I support by myself. On the side I enjoy painting the beautiful scenery of my town.

   b) Behaviour:

      (1) Every day I take my child to school and head out to work.

      (2) I earn my pay and return home with my child and help him with any school related tasks he may have.

(3) We have dinner with whatever cheap food is left in the fridge, or if I manage to bring something home from work.

(4) After he has gone to bed I spend my night working on my paintings I'm passionate about.

C. Domain Requirements

1. Search for booth: End users should be able to search for booths either by name or by category.

2. See artisan's artworks: End users must be able to see the artworks that an artisan has displayed in their booth.

3. Show interest in an artwork: End users must be able to indicate they would like to purchase an artwork.

4. Addition of content: Artisans must be able to add artworks to their booth as well as edit the information of said booth.

D. Interface Requirements

1. For Attendee Users the system will display the following:

a) A selection of the booths available at the event with a search system to limit their results if they choose to do so.

b) After selecting a booth, they will enter the booth and see the selection of artworks an artisan has displayed.

c) Here they can:

(1) Interact and chat with the artisan

(2) Show interest in one or more of the artworks

2. For Artisan Users the systems will display:

a) The Artisan user's own booth displayed upon entering, displaying their artwork and/or livestream.

b) Ability to add or remove artwork to or from their booth.

c) Ability to start or stop the livestream.

d) The artisan is also allowed to browse other fellow artisan's booths, but not interact with them in the same way he does his own.

E. Machine Requirements

1. Performance Requirements

a) The system needs to be fast and efficient, being able to handle the connection of multiple users at once with an acceptable response time of no more than 4 seconds.

b) The number of users sign-in will be limited in an extreme scenario where the number of users will affect the performance of the system.

c) In case of a downtime the system shall automatically recover after 10 minutes of being in reboot.

d) The system shall notify the users when there is a high traffic of users in the system.

2. Dependability Requirements:

a) In the case of fatal errors occurring, the estimate is that a failure will occur in a meantime of 28 days. And the downtime for such failure will be 10 minutes.

b) In terms of security, users can't access any personal information of other users and they can't find out about how our system works.

3. Maintenance Requirements:

a) In order to satisfy the Maintenance Requirements:

(1) Backup: for safety we shall create a backup for the site files (like frameworks, plugins ect) and the database just in case we need to recover the website.

(2) Reliability: we shall keep track of the site's uptime and speed. We will also backup the DNS Information.

(3) Regulations: we shall keep an eye for the Terms of Services and Privacy Policy of our system.

(4) Security: we will use the response protocol WHOIS in order to ensure our users sign-in information.

4. Platform Requirements

a) Application shall be Web Based.

b) Successfully implemented with a frame with Django

IV. Terminology

A. Domain Terminology

1. Client - Organizers of the event

2. End User - Users who will use the application

3. Art Walk - A pre-pandemic arts and goods event that would be held in Rincon, PR on a weekly basis

4. E-commerce - Selling goods and products online.

5. Artisan - A skilled craft worker who makes or creates material objects partly or entirely by hand.

6. Attendee - A person who attends a conference or other gathering

7. Booth- A virtually simulated booth similar to how it would be in person where an artisan can display and sell their artwork.

8. Live-stream - A live video transmission of an event over the internet.

V. Domain Entities:

A. Artisans users: Users that refer to any artist that will be attending the Art Walk and has decided to display their artwork with the hopes of selling it..

B. Attendee users: Users that refer to any member of the general public that will attend the Art Walk event to appreciate artworks and/or purchase a piece of art.

C. Artworks: Refers to any item in the domain for display or for purchase,

D. Booths: Refers to a virtual booth, that you would have to enter in order to see the artisan's artwork.

VI. Domain Functions:

A. Create user:

1. Create user - ADD : Server ➡ Users ➡ User >< Server

B. Remove User

1. Remove user - REMOVE : Server ➡ Users ➡ User >< Server

C. Update User

1. Update user - Update : Users ➡ User ➡ Update >< User

D. Search Booths by category, names or based on the information given compared to the database.

1. Search - Search : Server ➡ Criteria ➡ Booths ➡ Booth➡ Info >< Server ➡Display

E. When an Artisan opens a booth, add it onto the database.

1. Add Booth - ADD : Server ➡ Booths ➡ Booth ➡ Add >< Server

F. Remove from the database if Artisan decides to leave from the event or opt out.

    1. Remove Booth - REMOVE : Server ➡ Booths ➡ Booth ➡ remove >< Server

  G. Update Booth information

    1. Update information - UPDATE : Server ➡ Businesses ➡ Business ➡ remove >< Server

  H. Notifications

    1. To be decided on a later date.

VII. Domain Events:

  A. Users choose whether their account is as an artisan or as an attendee, signifying how they will interact with the application.

  B. Attendee users will have access to join rooms of each artisan on the day of the event.

VIII. Domain Behaviors:

  A. Artisan users set up their booth with their artworks.

  B. Attendee users can view the artisan's booth and their artworks.

  C. Attendee users can signify they wish to purchase one of the artworks.

  D. Artisan users set up a live stream to interact with their potential customers.

IX. Software Architecture

  A. The Software that will be designed to address the needs of the domain will encompass Entities and Algorithms, implemented as a web based application.

  1) **Entities**: Software Objects

    a) User: Will have two distinctions. Will be stored in a database and be able to be manipulated.

     (1) Artists: One of two types of users.

      (a) Properties: Properties of said object.

       (i) Will have a name and IDs.

        (a) IDs will be unique to only one object.

       (ii) Will include an email as a required parameter.

       (iii) Will have a password.

        (a) Passwords will and must abide by any rules imposed to insure a strong password.

      (b) Roles: Specific requirements that need to be fulfilled.

       (i) Set up a booth object.

(ii) Set up artwork objects.

(iii) Set up embedded links to a live stream services, such as Youtube, Facebook etc.

(2) Attendee: One of two types of users.

(a) Properties: Properties of said object.

(i) Will have a name and IDs.

(a) IDs will be unique to only one object.

(ii) Will include an email as a required parameter.

(iii) Will have a password,

(a) Passwords will and must abide by any rules imposed to insure a strong password.

(b) Roles: Specific requirements that need to be fulfilled.

(i) View booth object.

(ii) View artwork objects.

(iii) Can purchase artworks for sale.

(a) We will not enable selling within the app, rather each party involved will be responsible on how the transactions will be made.

Note: An artist will not set up objects in the code rather in the application and interface level, the software will be in charge of managing said objects in the back end.

b) Booths: An object that contains artwork objects, artists can create booths, remove and edit booths.

(1) Properties: Properties of said object.

(a) Will have a name and IDs.

(i) IDs will be unique to only one object.

(b) Will have a category parameter.

(c) Will display information and have a cover image.

(d) Will display the booth author.

(2) Roles: Specific requirements that need to be fulfilled.

(a) To contain artwork objects.

(b) Contain information about the booth.

(c) Contain author information.

(d) View artwork objects.

(e) Contain embedded links to livestream services.

c) Artworks: An object that contains artworks, artists can create, remove and edit artworks.

(1) Properties: Properties of said object.

(a) Will have a name and IDs.

(i) IDs will be unique to only one object.

(b) Will display artwork author.

(c) Will display information and have a cover image.

(2) Roles: Specific requirements that need to be fulfilled.

(a) To be shown.

(b) To be sold. (outside of our app)

2)Algorithms: To manipulate the data positions and search for a specific data. As of now we can see only using only two types of algorithms,this might change as the project progresses.

a) Searching: Finds a specific object/data:

(1) Intended use:

(a) Only for booths only as of now.

(2) Roles:

(a) To facilitate user experience.

b) Sorting: Manipulating data and objects.

(1) Intended use:

(a) Users

(b) Booths

(c) Artworks

(2) Roles:

(a) To facilitate user experience.
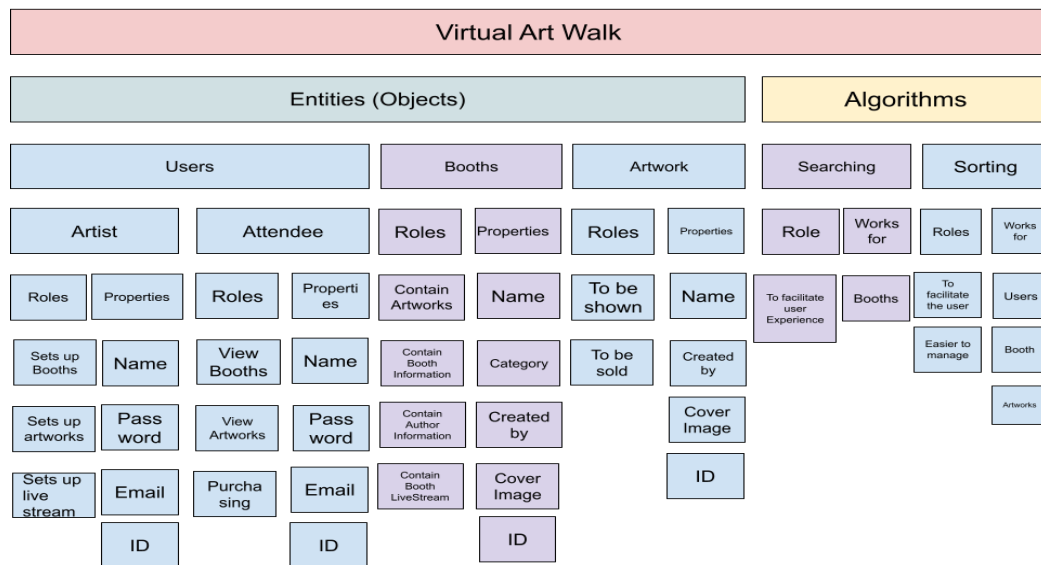
(b) Easier to manage backend-wise.

Figure 1: Software hierarchy and planned architecture

X. Software Component Design

    A. The web app will store the different object information using Django's QuerrySet data structures.
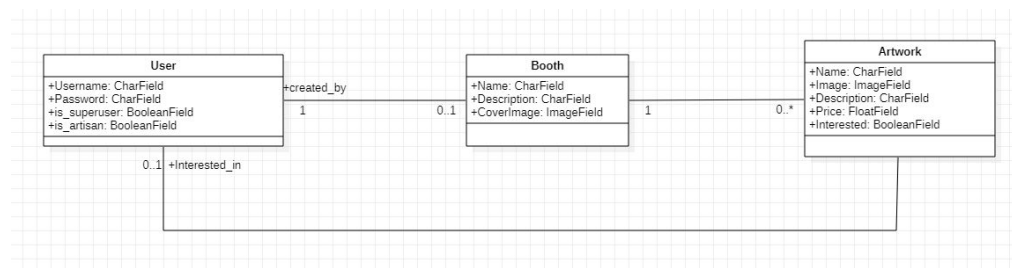
    B. These will be stored in a SQL database.

Figure 2: Domain entities and their interactions

XI. Selected Fragments of Implementation

    A. Up to now no Source Code has been made yet.

    B. We decided to use DJango as our framework, as it fits our needs such as being secure and easily scalable .

Analytic Document

I. Concept Formation

    A. Inconsistencies:

        1. Certain artworks or displays may be under the name of an artist which is not the original author.

2. Attendee is not permitted access into the ongoing event of the desired artisan.

3. Events have unclear start times.

4. An attendee sees an artists' booth but when he enters it, the booth has no displayed artworks.

B. Conflicts:

1. Superficial Testing

2. Developers lack knowledge about the Domain.

3. Potential for Security Leaks.

4. Failing to clarify the requirements of the client for poor risk management.

C. Incompleteness:

1. Search filter options don't work properly and fail to filter the results correctly.

2. Artisan Users complain about lack of features or options for booth customization.

D. Resolutions:

1. Regularly advise artisans to check if their information displayed in their booth is updated and correct.

2. Possibly provide a support section so that end users could report small bugs.

3. Hold periodic maintenance.

II. Validation

A. We have our sights set on first showing users each artisan's individual booth at the time entering the webpage. This could be somewhat limiting to the artisan, as maybe they'd rather be able to see what is trending first, and to check if they themselves are having a time in the spotlight on the front page. We also don't have plans to work directly with sales, as we don't desire to manage transactions and money management, which may be off putting to some clients and or users.

User Feedback:

1. Why do you not want to work with money, it would make it easier for us who want to buy.

2. I personally would enjoy to begin by seeing all the booths, but I understand why you'd rather us begin in our individual booths.

3. I found the pictures for the artworks were too small to get a good look at some of them.

III. Verification

   A. The domain requirements fit inside domain description, the required features and functionality all make up what is described to be the domain of an Art Walk. The requirements are fitting for the specified domain and do not extend too far from the main idea of the rough sketch. The requirements describe features and entities that can be easily implemented as classes and functions in the software development of the system. The exact architecture of this system is yet to be 100% designed, but the requirements are not impossible to be implemented.

Project Progress

A. Documentation

   a. We finished and decided to use the A3 for our project.

   b. Finished the Proposal.

      i. Informative

      ii. Descriptive

      iii. Analytical

   c. Decided on the framework to use: DJango

B. Code

   a. No code has been made as of now.

C. Extracurricular

   a. Weekly Meetings.

   b. Established preliminary roles such as Front-End developers, Back-End developers, and documentation.

   c. Set up a Discord Server in order to organize ourselves.

   d. Investigated Python Libraries that could be used for our project.