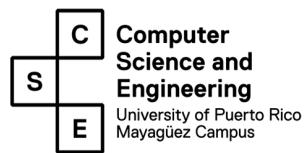


University of Puerto Rico Mayaguez  
Department of Computer Science and Engineering  
INSO4115 Software Requirements



ArtWalk Final Phase

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Alejandro Ruiz Almodóvar, Jorge Ortiz Ramirez

April 28, 2021

Prof. Marko Schütz Schmuck

# **Informative Document**

## I. Name, Place, Date

- A. ArtWalk, University of Puerto Rico - Mayaguez Campus, April 28<sup>th</sup>, 2021

## II. Partners

### A. Developers and Roles

- a. Ebdiel J. Roman Feliciano
  - i. Documentation
  - ii. Front-End Developer
- b. Richard Rivera Paulino
  - i. Documentation
- c. Diego Alejandro Rodríguez Del Río
  - i. Documentation
  - ii. 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

### B. Clients

- a. The different artists and the attendees of the In-Person ArtWalk.

## III. Current Situation

- 1. 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 discovered 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 was 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 artworks. 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. Prior to the pandemic when the ArtWalk was hosted regularly, artists attending the ArtWalk would have to register with the ArtWalk organizers in order to separate a space for their booth. Artists would then set up their booths in their provided space in the Rincón plaza by using folding tables, tablecloths, decorations of their choosing, and of course the artworks they want to display and potentially sell. The artists would have to efficiently make use of the little space they had for displaying their artworks in their booths. Artists were expected to greet and interact with attendees in order to display their artworks, clear up doubts regarding artworks, or to sell their artworks. Attendees had the opportunity to walk through Rincon's plaza and visit the distinct booths being hosted by the local artists. When visiting an artist's booth, an attendee was able to see all of this artist's displayed artworks and had the chance to ask questions directly to the artist regarding their artworks, prices of said artworks, among other questions that would naturally arise.

Due to the ongoing pandemic, an in-person ArtWalk 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, the local artists have lost one of the best sources of income they could come by. As of now it has become increasingly difficult to find a solution for both of these issues. This is the main reason behind the creation of a digital or virtual art walk which will allow any user that is interested to easily view any available artwork that has been previously uploaded by an artist.

#### IV. Needs & Ideas

##### A. Needs:

1. Local artists need a way to directly interact with their community.
2. Artists need to be able to sell their artworks, via established and secure payment platforms.
3. Attendees want a way to participate in what was the ArtWalk in a way that is safe due to the current pandemic.

##### B. Ideas:

1. We could create an environment similar to the in-person ArtWalk that provides artists with the ability to display and promote their artworks, while providing attendees the ability to look at these artworks and indicate interest in purchasing said artwork (by using secure payment platforms outside of our service).
2. Artists and attendees could interact by using a live stream service by using the live chat feature.
3. By allowing a means of communication between artists and attendees, artists can clear up doubts regarding their artworks, and attendees can engage with the artists and comment on their artworks.
4. 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 the ability to search for artworks, booths, by categories, and by artist/creator.
2. Provide the artists exposure to a wider audience for their artwork/craft as well as to be able to communicate with attendees in order to coordinate an artwork purchase by using external payment methods.
3. Provide the artists with a direct way to connect and interact with their community.
4. Provide the attendees with a direct way to interact and engage with artists via livestream.

5. 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.

## B. Facilities

1. We selected Python as the programming language for our system to be.
2. We will utilize Django as our technology stack/framework.
3. The system to be's front end will be built with raw HTML and CSS

## VI. Scope & Span

- A. The scope is the exposure of the various artworks for the ArtWalk.
- B. The span would include the people that are interested and also attend the ArtWalk.

## VII. Synopsis

- A. The website allows the users to display and/or search for artworks created by local artists, most notably those pertaining to the Rincon community. Artists and attendees are welcome to the site, and have different experiences tailored to them. Artists are able to set up shop in their own booths, where they can stream their artwork from the comfort of their home as well as show off some pictures of their artwork and any contact information they want to share. Attendees, on the other hand, are capable of searching for each artist's booths as well as attend the stream within the artist's booth itself. Attendees can interact with artists by using the livestream's live chat feature in order to clear up doubts regarding the artworks or to coordinate an artwork purchase (by using external payment methods outside of our service).

## VIII. Assumptions and Dependencies

### A. Assumptions:

1. We assume that we will have artists to provide us with feedback during development.
2. We assume that past participants of the in-person ArtWalk, be it artists or attendees, would be interested in participating in a virtual ArtWalk that attempts to emulate the basic aspects of the in-person experience.
3. We assume that people would be interested in participating in online events.
4. We assume that our system-to-be would be open to the public and easily accessible

5. We assume that the website will manage the load efficiently.

B. Dependencies:

1. We depend on the participation of our stakeholders.
2. We depend on people being interested in participating in online events after the pandemic has ended.
3. We depend on the public being able to utilize our platform easily and without any stress.
4. We depend on artists wanting to display their artworks.

IX. Implicit/Derivative Goals

A. Our goals:

1. Attract newcomers to the ArtWalk virtual event.
  - a) The attraction of newcomers would, in turn, further allow us to complete our second goal.
2. Bolster the local art scene by increasing the capability of exposure to the artists.
  - a) By bolstering the local art scene, we can indirectly help the economic situation of not only the municipality of Rincon, but also the rest of the island.
3. Provide an entertainment platform for attendees.
  - a) Entertainment is hard to come by due to the current pandemic, but the Virtual ArtWalk can allow for people to attend such a valuable and iconic event via the internet, keeping their minds off of the grim state we are living in.
4. Provide a platform for artists to display their work when unable to do so in person.
  - a) Some artists don't have the capability to show up each week, especially now due to the pandemic cancelling most agglomerated events. This platform can help artists show off their artworks without needing to appear in person.
5. Provide people with the opportunity to discover new art and artists.
  - a) Allows people with a passion for art to discover talented artists they might wish to support.

## **Descriptive Document**

### I. Rough Domain Sketch

- A. Due to the Covid-19 pandemic, social gatherings have been put on pause due to CDC guidelines.
- B. Artists have limited ways of getting exposure without live-public events.
- C. A sense of community is easy to lose when we spend so much continuous time indoors without interacting with our local society.
- D. People want to discover new artists and support the local art scene.
- E. People want to be entertained in a safe way that follows the health safety guidelines.
- F. During the In-Person ArtWalk, artists had booths where they displayed their artworks. Attendees were able to observe and appreciate these artworks and could also directly ask questions to the artists regarding their artworks. An attendee could then purchase an artwork from said artist. Attendees would then spend their time walking around Rincon's plaza visiting the remaining booths that caught their attention. These are the interactions that have been affected due to the ongoing pandemic.
- G. "How can we easily display an artist's work without them having to actually attend?" In other words, is there a way to facilitate or emulate this action (or the complete interaction) between artists and attendees in such a way that an attendee can see an artist's booth, check their artwork, and decide if they want to purchase said artwork from the comfort of their own home.
- H. "What if we allow for live streaming for the artists involved, allowing them to keep a connection with the attendees interested in their art?"

### II. Narrative

- A. In the domain there is currently a void left by the pandemic when it comes to community interaction and social experiences. This situation can have an adverse effect on people causing them to lose a sense of community with the people around them, which can lead to loneliness or worse. This has particularly affected local community artists who depend and value social exposure for their line of work. Not only that, but it has also affected the attendees who had a leisurely time visiting and appreciating the art that said artists created. There is opportunity for this void to be filled, providing people

with a way to connect and interact with their community while providing artists the exposure they need.

- B. 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**. Not only will the ArtWalk provide booths that will allow the consumers to view and open themselves to new artworks from the safety of their home, but will also provide a fresh new feel through our livestream feature which will further encompass our audience with the media that is being produced. This in turn, shall bring variety to the artwork dynamic, providing the consumers with a different and gripping experience. Registration to these events is necessary so that users may be able to partake in the activities offered by many artists that are showcasing their work.
- C. 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 artists' artworks, but also to provide a platform for interaction between the artist and the attendees. Artists will manage a **booth** where they have the ability to display the artworks of their choosing using images, as well as adding a brief text description for said artwork. Attendees will interact with artists if they have any questions regarding their artworks or are interested in purchasing a specified artwork found in this artists' booth. In which case, the artist and attendee would communicate using the livestream's live chat feature in order to coordinate said purchase (by using secure external payment platforms outside of our service).

### III. Requirements Prescription

#### A. User Stories

1. As an artist I want to be able to display my artworks to the local community in order to gain more exposure.
2. As an attendee I want to discover local artists' artworks in order to support my local community and grow closer to the people around me.
3. As an artist, 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 artist in order to show my artwork and make some sales.

4. 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.
5. As a local resident living close to the Rincón plaza I find the ArtWalk to be quite noisy, and I am also affected by the commotion caused by the people who attend this event.

## 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.

#### c) Related User Story:

(1) User story: 2

### 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) Related User Story:

- (1) User stories: 1 & 3

3. Bystander/nearby resident: Karen Acevedo

a) Demographic:

- (1) I am a 48 year old single mother living close to Rincón's plaza. I hate the noise caused by the ArtWalk because it causes my newborn child to cry uncontrollably and in turn affects my emotional well being. Also, I find that parking spaces are very restricted due to the commotion caused by all the tourists visiting the ArtWalk.

b) Behaviour:

- (1) I work everyday at a nail salon from 8am to 5pm.
- (2) I buy groceries on the weekends to feed my family and buy formula milk for my newborn child.
- (3) After work I clean the house, and at night I sleep watching some Netflix.

c) Related User Story:

- (1) User stories: 5

C. Domain Requirements

1. Artist registration:

- a) Artists must be required to register for the event to separate the space for their booth.

2. Set up a booth:
  - a) Artists must be able to set up a booth to display their artworks during the event.
3. Add artworks:
  - a) Artists must be able to add artworks to their booth for display.
4. See artist's booth:
  - a) Attendees must be able to see the artist's booths.
5. See artist's artworks:
  - a) Attendees must be able to see the artworks that an artist has displayed in their booth.
6. Artist-attendee interaction:
  - a) Artists must be able to communicate and interact with attendees in order to display their artworks, clear up any doubts that may arise when checking out the booth, or to carry out sales of their artworks.

#### D. Interface Requirements

1. Entity forms:
  - a) A booth creation must require a form to be provided for its creation and an artwork also must require a form and a media file (image of said artwork) to be provided for its creation.
    - (1) Therefore a specific screen will be presented where the user would enter their data.
2. Addition of content:
  - a) Artists must be able to add artworks to their booth.
    - (1) Therefore, a screen/or button will be presented to add more objects, which in turn lead you to a creation form.
3. Deletion:
  - a) Artists must be able to reduce the artworks in their booth by deleting, or delete their booth entirely.
    - (1) Therefore, a screen/button will be presented where artists can delete artworks or delete their booths.
4. Editability:
  - a) Artists must be able to edit their artworks and booths.

- (1) Therefore, a screen will be presented where artists can edit their booths to their liking.

## 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 signed-in will be limited to around 700 to 1,000 users at any given time, our expected amount will be around 500 users. 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 at least 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 - The different artists and the attendees of the In-Person ArtWalk (Introduced in Informative Part, section II)
- 2. End User - Users who will use the application (Capabilities introduced in Domain Requirements)
- 3. ArtWalk - A pre-pandemic arts and goods event that would be held in Rincon, PR on a weekly basis (Explanation and concept first introduced in Informative Part, section III “Current Situation”)
- 4. E-commerce - Selling goods and products online (Introduced in the Rough Domain Sketch)
- 5. Artist - A person who practices any of the various creative arts, such as painting, drawing, sculpting, music, etc. (Concept importance introduced in the Domain Narrative)
- 6. Attendee - A person who attends a conference or other gathering (Concept introduced formally in the Software Architecture)
- 7. Booth- A virtually simulated booth similar to how it would be in person where an artist can display and sell their artwork, via outside means. (Introduced in Synopsis)
- 8. Livestream - A live video transmission of an event over the internet. (Introduced via Rough Domain Sketch)

#### V. Domain Entities:

- A. Artist users: Users that refer to any artist that will be attending the ArtWalk 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 ArtWalk 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 artist's artwork.

#### VI. Domain Functions:

- A. Create a booth: This function calls upon the artist, to check whether or not a booth is able to be created.

1. Preconditions: For a booth to be created, the following condition(s) need to be satisfied:

- a) An artist must have a desire to display their artworks.
- b) An artist must have a desire to open a booth.

2. Postconditions: If the preconditions are satisfied then the following output(s) for the function are:

- a) An artist successfully creates/sets up a booth.

B. Create artwork: This function calls upon the booth, to check whether or not an artwork is able to be created.

1. Preconditions: For an artwork to be created, the following condition(s) need to be satisfied:

- a) An artist must have a desire to display their artworks.
- b) Said artist must provide an image of their artwork.
- c) An artist must have an open booth.

2. Postcondition(s): If the preconditions are satisfied then the following output for the function is:

- a) An artist successfully creates/sets up an artwork.

C. Visit booth: This function calls upon the booth, to check if a booth is able to be visited.

1. Preconditions: For a booth to be able to be visited, the following condition(s) need to be satisfied:

- a) It must exist.
- b) An attendee must have a desire to visit said booth.

2. Postcondition(s): If the preconditions are satisfied than the following output for the function is:

- a) The attendee successfully entered the booth.

D. See the artwork in a booth: This function calls upon the artwork to check if it is visible.

1. Preconditions: For an artwork to be seen, the following condition(s) need to be satisfied:

- a) The artwork must exist.
- b) An attendee must have a desire to see artworks.
- c) An artist must have an open booth.
- d) The booth must have artworks in it.

2. Postcondition(s): If the preconditions are satisfied then the following output for the function is:
  - a) The attendee will see the artist's artwork.
- E. Chat with artists: This function calls upon artists, and checks if there is a livestream in the booth to be able to chat.
  1. Preconditions: For an attendee to chat to an artists, the following condition(s) need to be satisfied:
    - a) A booth exists.
    - b) A livestream exists.
    - c) An attendee is part of the livestream.
    - d) An attendee must have a desire to chat.
    - e) An artist must have been able to engage with attendees.
  2. Postcondition(s): If the preconditions are satisfied then the following output for the function is:
    - a) Artists and attendees interact and chat.

## VII. Domain Events:

- A. Domain events are separated between creations and interactions:
  1. Creations: Are any event that generates a new domain entity. Which are the following:
    - a) Artist Registry: A new artist has been registered.
    - b) Attendee Registry: A new attendee has been registered.
    - c) Artwork Setup: An artist uploaded an image of their artwork and has successfully created an artwork.
    - d) Booth Setup: A registered artist sets up their booth and can now add artworks to it.
  2. Interactions: Are events that interact with other entities within the domain:
    - a) Booth interactions: An attendee has entered an artist's booth on the day of the event. Booth is displayed for open visualization to attendees.
    - b) User interaction: An attendee has engaged with an artist or vice versa.

## VIII. Domain Behaviors:

A. Artist behaviours: Behaviours that are explicitly from the artist. Which are the following:

1. An artist has signed up and created their booth.
2. An artist has added their chosen artworks to the booth.
3. On the day of the event an artist has already set up their booth and interacts with the attendees who visit them.

B. Attendee Behaviours: Are behaviours that are explicitly from the attendees.

Which are the following:

1. An attendee joins on the day of the event.
2. Attendee explores the distinct booths set up by the artists.
3. Attendee enters an artist's booth.
4. Attendee interacts with the artist.

## IX. UI Description

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

1. A selection of the booths available at the event with a search system to limit their results if they choose to do so.
2. After selecting a booth, they will enter the booth and see the selection of artworks an artist has displayed.
3. Here they can:
  - a) Interact and chat with the artist.
  - b) Show interest in one or more of the artworks

B. For Artists Users the systems will display:

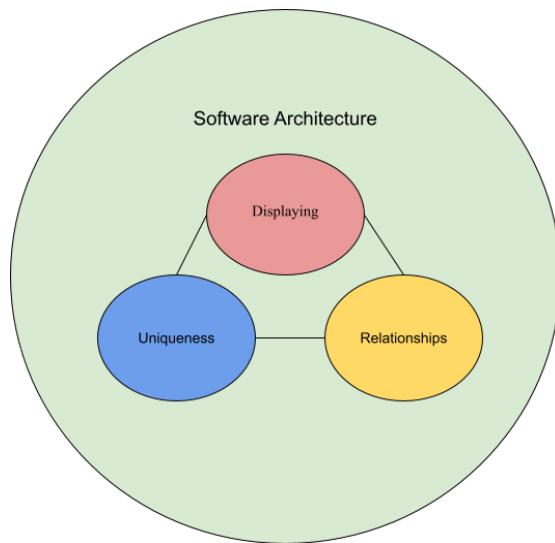
1. The Artist user's own booth displayed upon entering, displaying their artwork and/or livestream.
2. Ability to add or remove artwork to or from their booth.
3. Ability to start or stop the livestream.
4. The artist is also allowed to browse other fellow artist booths, but not interact with them in the same way he does his own.

## X. Software Architecture:

A. We decided that after evaluating the requirements we can categorize similar aspects in the follow three categories:

1. Displaying
  - a) Search for booth
  - b) See artist's booth

- c) See artist's artworks
2. Mutability
    - a) Entity forms
    - b) Addition of content
    - c) Deletion
    - d) Editability
  3. Relationships
    - a) Artwork Uniqueness
    - b) Booth Uniqueness
    - c) Parent relationship



**Figure 1:** Software architecture

## XI. Software Component Design

- A. The web app will store the different object information using Django's QuerySet data structures.
- B. These will be stored in a SQL database.
- C. There will be search algorithms.
- D. There will be sorting algorithms.

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

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

a) Artists: One of two types of users.

(1) Properties: Properties of said object.

(a) Will have a name and IDs.

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

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

(c) Will have a password.

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

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

(a) Set up a booth object.

(b) Set up artwork objects.

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

b) Attendee: One of two types of users.

(1) Properties: Properties of said object.

(a) Will have a name and IDs.

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

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

(c) Will have a password,

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

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

(a) View booth object.

(b) View artwork objects.

(c) Can purchase artworks for sale.

(i) 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.

2. Booths: An object that contains artwork objects, artists can create booths, remove and edit booths.
    - a) Properties: Properties of said object.
      - (1) Will have a name and IDs.
        - (a) IDs will be unique to only one object.
      - (2) Will have a category parameter.
      - (3) Will display information and have a cover image.
      - (4) Will display the booth author.
    - b) Roles: Specific requirements that need to be fulfilled.
      - (1) To contain artwork objects.
      - (2) Contain information about the booth.
      - (3) Contain author information.
      - (4) View artwork objects.
      - (5) Contain embedded links to livestream services.
  3. Artworks: An object that contains artworks, artists can create, remove and edit artworks.
    - a) Properties: Properties of said object.
      - (1) Will have a name and IDs.
        - (a) IDs will be unique to only one object.
      - (2) Will display artwork author.
      - (3) Will display information and have a cover image.
    - b) Roles: Specific requirements that need to be fulfilled.
      - (1) To be shown.
      - (2) To be sold. (outside of our system)
- 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:

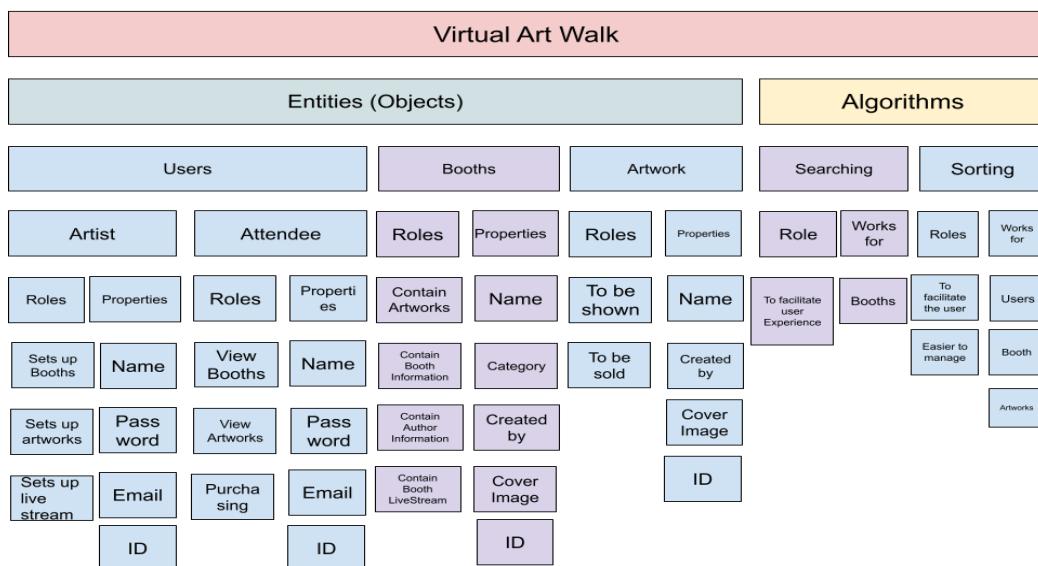
- (a) To facilitate user experience.  
 b) Sorting: Manipulating data and objects.

(1) Intended use:

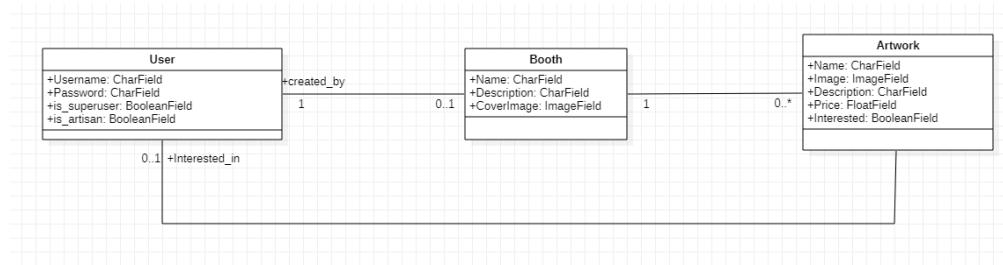
- (a) Users  
 (b) Booths  
 (c) Artworks

(2) Roles:

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



**Figure 2:** Software structure



**Figure 3:** Domain entities and their interactions

## XII. Selected Fragments of Implementation .

A. Selection: These are the languages used, frameworks and libraries:

1. Python was chosen because it's easy to learn and use, versatile and flexible, has a large mature and supportive python community and a

large pre-existing library, and pre-existing knowledge of the language between all members so we could start coding and working the system faster.

2. We decided to use DJango as our framework, as it fits our needs such as being secure and easily scalable. Django 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. 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 data. Django is also proven with big tech companies such as Instagram, Spotify, YouTube, Dropbox and many others.
3. Libraries used:
  - a) Pillow - allows us to submit media file easily
  - b) Django widget tweaks - preferences

B. Implementations: This is how we implemented parts of the domain within code.

1. Models: Our project includes the following models based on our project entities, using Django.
  - a) Booths: The key parameters they have are the following:
    - (1) A name
    - (2) Description
    - (3) Twitch name (Livestreaming name)
    - (4) Cover image
    - (5) CreatedBy (Booth owner)
  - b) Artwork
    - (1) A name
    - (2) Description
    - (3) Image of artwork
    - (4) Price
    - (5) Interested (Boolean Flag)
    - (6) Booth (Which booth it belongs to)
  - c) Profile
    - (1) User (Name/Person)

(2) IsArtisan (Determines if a user is an attendee or an artist)

(3) HasBooth (checks if that specific user has ha a booth)

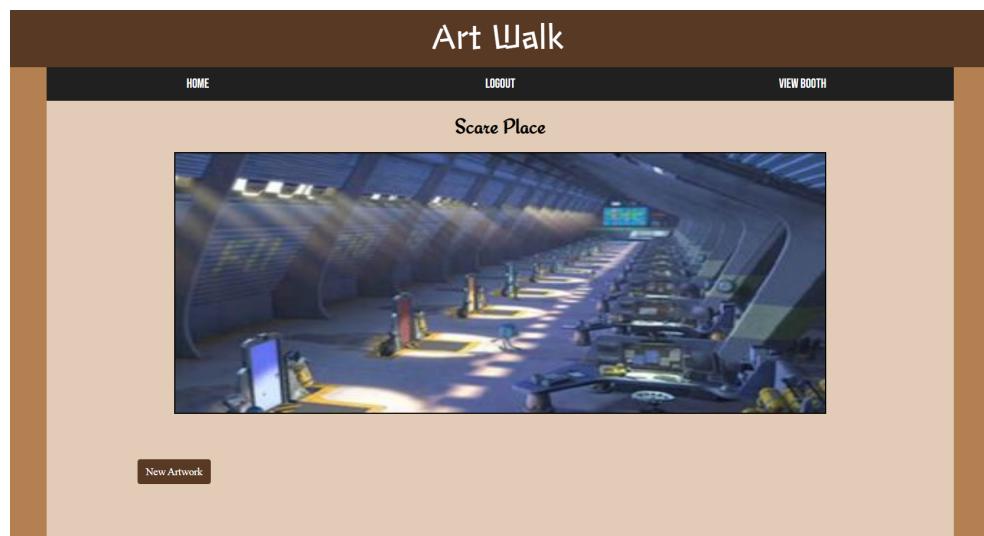
```
from django.db import models
from django.contrib.auth.models import User
# Create your models here.

class Booth(models.Model):
    name = models.CharField(max_length=50)
    description = models.CharField(max_length=200)
    twitch_name = models.CharField(max_length=50)
    cover_image = models.ImageField()
    created_by = models.ForeignKey(User, on_delete=models.CASCADE, related_name='booth')

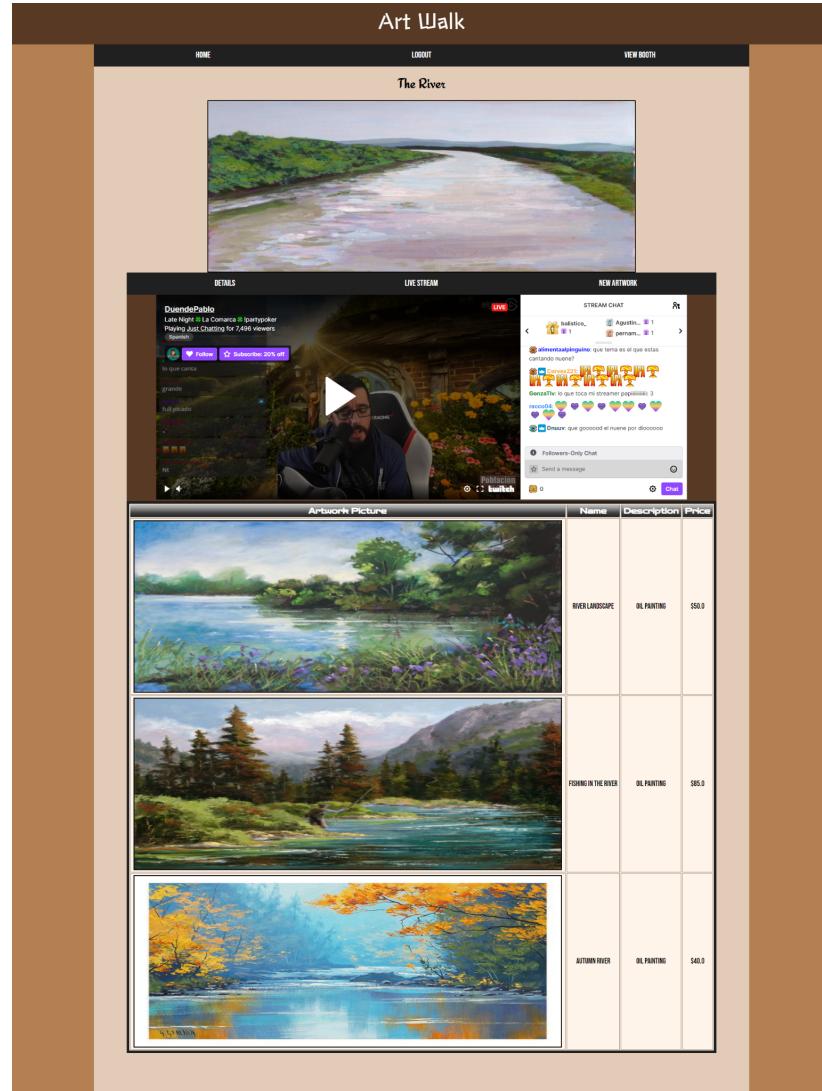
class Artwork(models.Model):
    name = models.CharField(max_length=20)
    description = models.CharField(max_length=200)
    image = models.ImageField(upload_to='booth_images')
    price = models.FloatField()
    interested = models.BooleanField(default=False)
    booth = models.ForeignKey(Booth, on_delete=models.CASCADE, related_name='artworks')

class Profile(models.Model):
    user = models.OneToOneField(User, on_delete=models.CASCADE, null=True)
    is_artisan = models.BooleanField(default=False)
    has_booth = models.BooleanField(default=False)
```

**Figure 4:** Fragment of implementation, models; backend.



**Figure 5:** Fragment of implementation: booths (EARLY); front end.



**Figure 6:** Fragment of implementation: booths, artworks and livestream (FINAL), front end.

## 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 artist.
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.
5. The following Machine 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) In case the system's response time exceeds 4 seconds threshold due to excessive traffic, the system will initiate a reboot.
  - c) These two cannot coexist because they contradict each other, and decided that only *a point* would better suit the need of the system-to-be.

C. Incompleteness:

1. Search filter options don't work properly and fail to filter the results correctly.
2. Artist Users complain about lack of features or options for booth customization.

D. Resolutions:

1. Regularly advise artists 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. Validation Scenario Walkthrough:

1. Assuming a user (artist) that is interested in using the Art Walk web application in order to set up a booth: when this user engages with the front-end to create the booth, after they have inputted the booth's properties such as name, description, and cover image, the back-end's

views make the according method calls to create the objects necessary for the booth creation in preparation for the front-end rendering. After rendering the front-end, the user is now able to see the booth they have successfully created with the initial specified properties.

- B. Further testing can be done to verify that no unexpected results arise when the user engages with the system, if this is achieved, the system is validated.
- C. Validation through feedback:

**User Feedback:**

- 1. Why do you not want to work with money, it would make it easier for us who want to buy.
  - (1) Our response:
    - (a) Right now working with money is not in the scope of the project, although we're not opposed to looking into it later on.
- 2. I found the inside of the booth, more specifically the layout for the art works to be too cluttered and unorganized.
  - (1) Our response:
    - (a) Thank you for the feedback, we plan to revisit the front-end for the booths before final launch so we will take cleaning up and formatting into consideration.
- 3. I found the pictures for the artworks were too small to get a good look at some of them.
  - (1) Our response:
    - (a) Thank you for the suggestion, we will be taking this into consideration. To make sure our system is efficient, our domain model must meet the requirement of having the images be accessible to all users, so we will update the system to make sure it meets this requirement.

### III. Verification

- A. Ideally, unit tests should be implemented by the back-end developers after developing any distinct views in order to test these views and to ensure methods are correctly accessing the routes and returning the correct HTTP

response status code. Furthermore unit tests should be developed to test method calls made by the views using the appropriate HTTP requests and comparing the value returned by the method to the desired results produced by known values. During this final phase, some preliminary unit tests such as those previously described have been implemented.

## Project Progress

### A. Documentation

- a. Worked on fixing various talk points throughout the Phase 3 document:
  - i. Fixed an issue regarding domain functions, where previously it was a list without explanation. Now shows proper functions with their operands, pre-conditions and their post condition.
  - ii. Fixed an issue regarding domain narrative, where unexpected details were introduced. This is now re-written and now shows proper narrative relation to the phenomena and concepts.
  - iii. Fixed a misunderstanding of the domain within the informative document. Now the informative document has been rewritten the better fit within the domain.
  - iv. Fixed some odd domain requirements and made them consistent.
  - v. Fixed some part of the rough domain sketch.
  - vi. Went over previous submission's feedback (proposal/phase1)
- b. Additions and/or improvements:
  - i. Added further details on parts, such as domain functions, events, behaviours, goals, narrative, stakeholder personas, user stories, ideas, concepts, synopsis, scope, span, assumptions and dependencies.
  - ii. Include source code as fragments of implementation that goes over how domain entities are handled with the application.
  - iii. Added final version booth, artwork and livestreaming within the fragments of implementation.
  - iv. Made small adjustments to the document format.
  - v. Prepared a presentation and a small demo.
- c. Miscellaneous
  - i. Fixed various typos and wording.

### B. Code

- a. Fully implemented booths, artworks and profiles.

- b. Major front end adjustments.
- c. Fully implemented the live streaming functionality.
- d. Fully implemented, explore booths functionality.
- e. Version 1.0 of the application.

C. Extracurricular

- a. Followed the sprint roadmap and increased the speed at which it was conducted.
- b. Bi-daily meetings were held to speed up back-end and front-end development of the project using pair programming.
- c. Paired programming was conducted using "CodeTogether" to simulate coding on a single computer.
- d. Conducted simulations of the application between team members.
- e. Made efforts for a possible deployment of the application in the future.
- f. Research on lecture materials.
- g. Rewatched lecture videos.