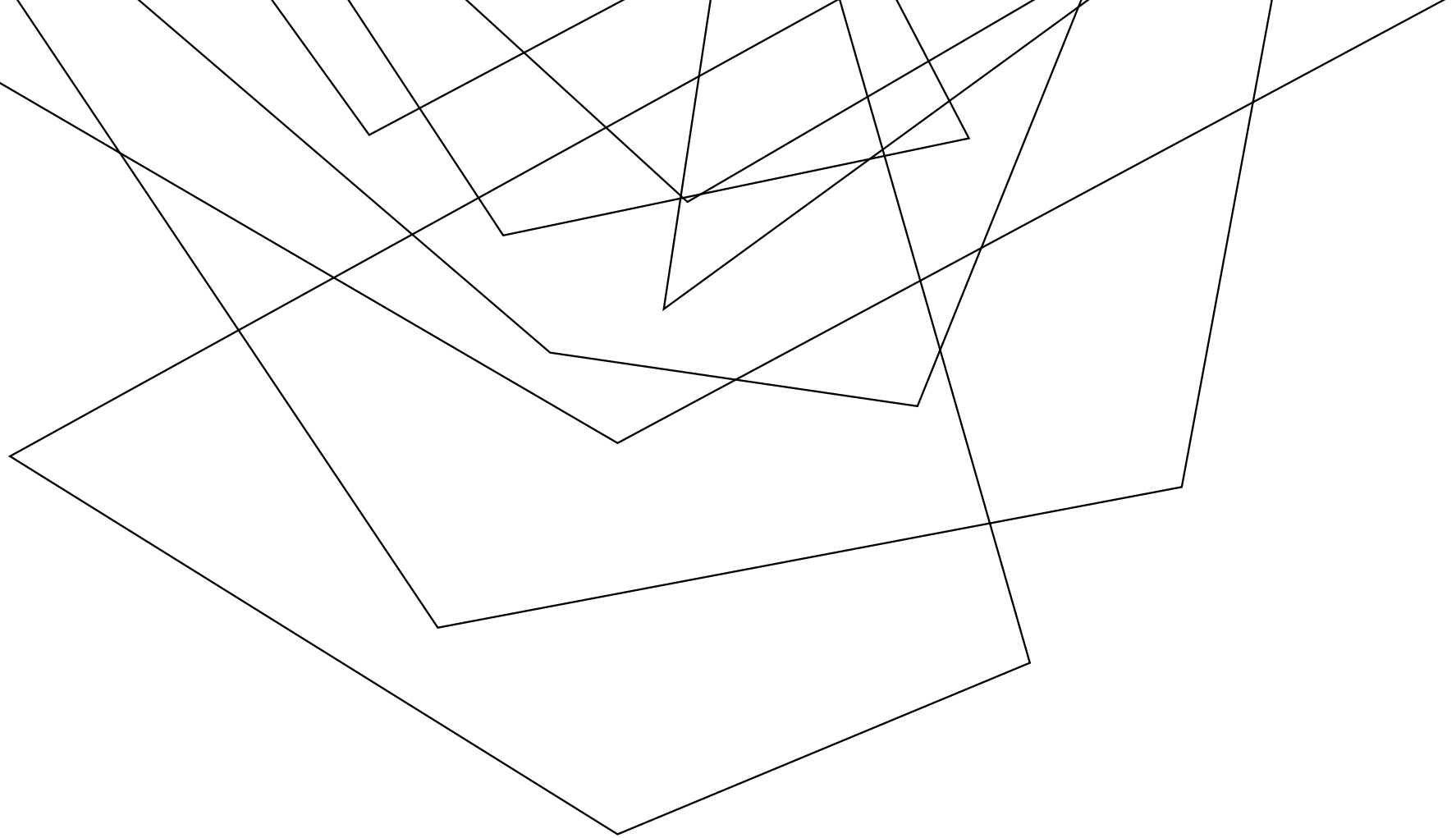
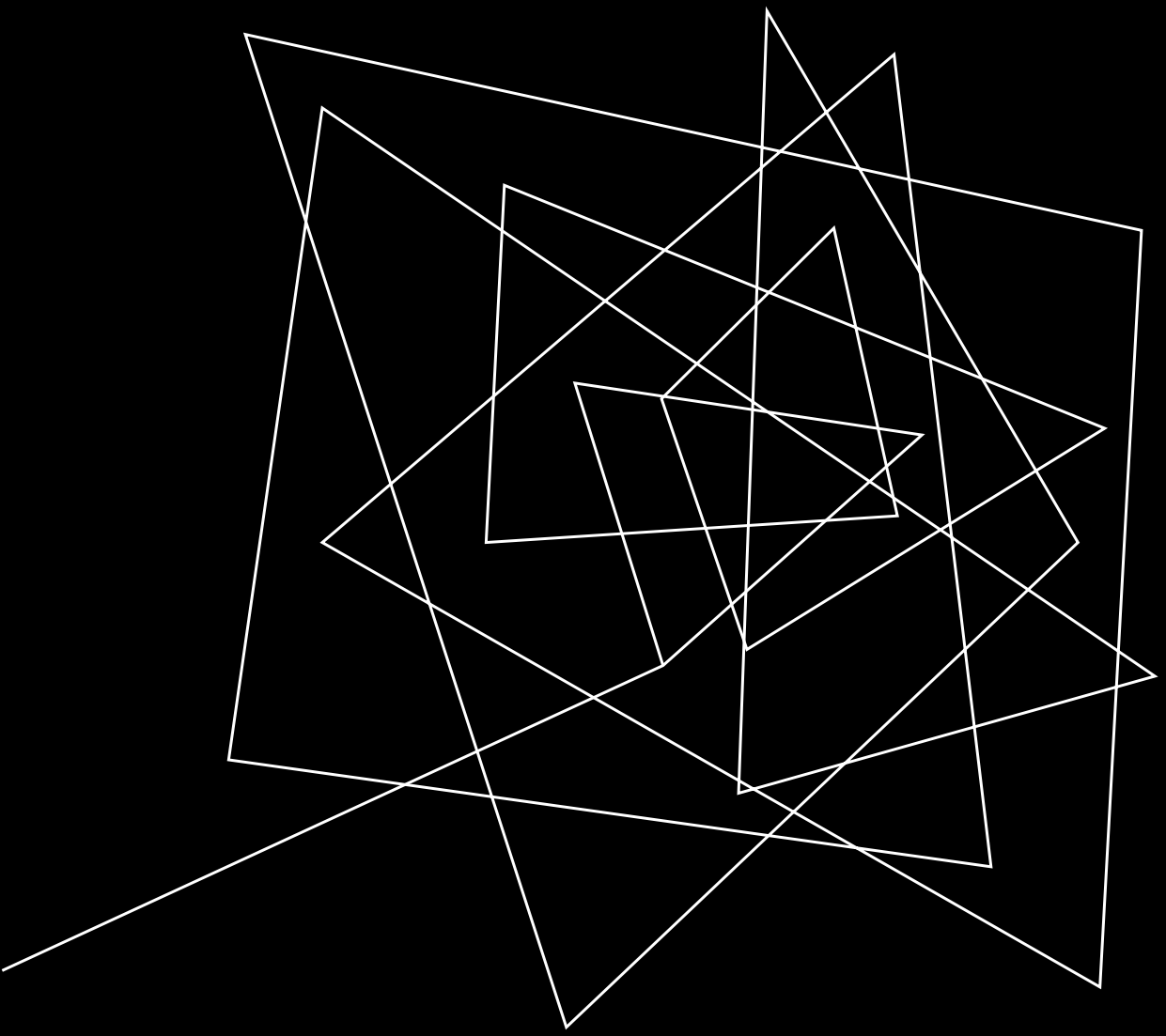


STUDENT HIVE

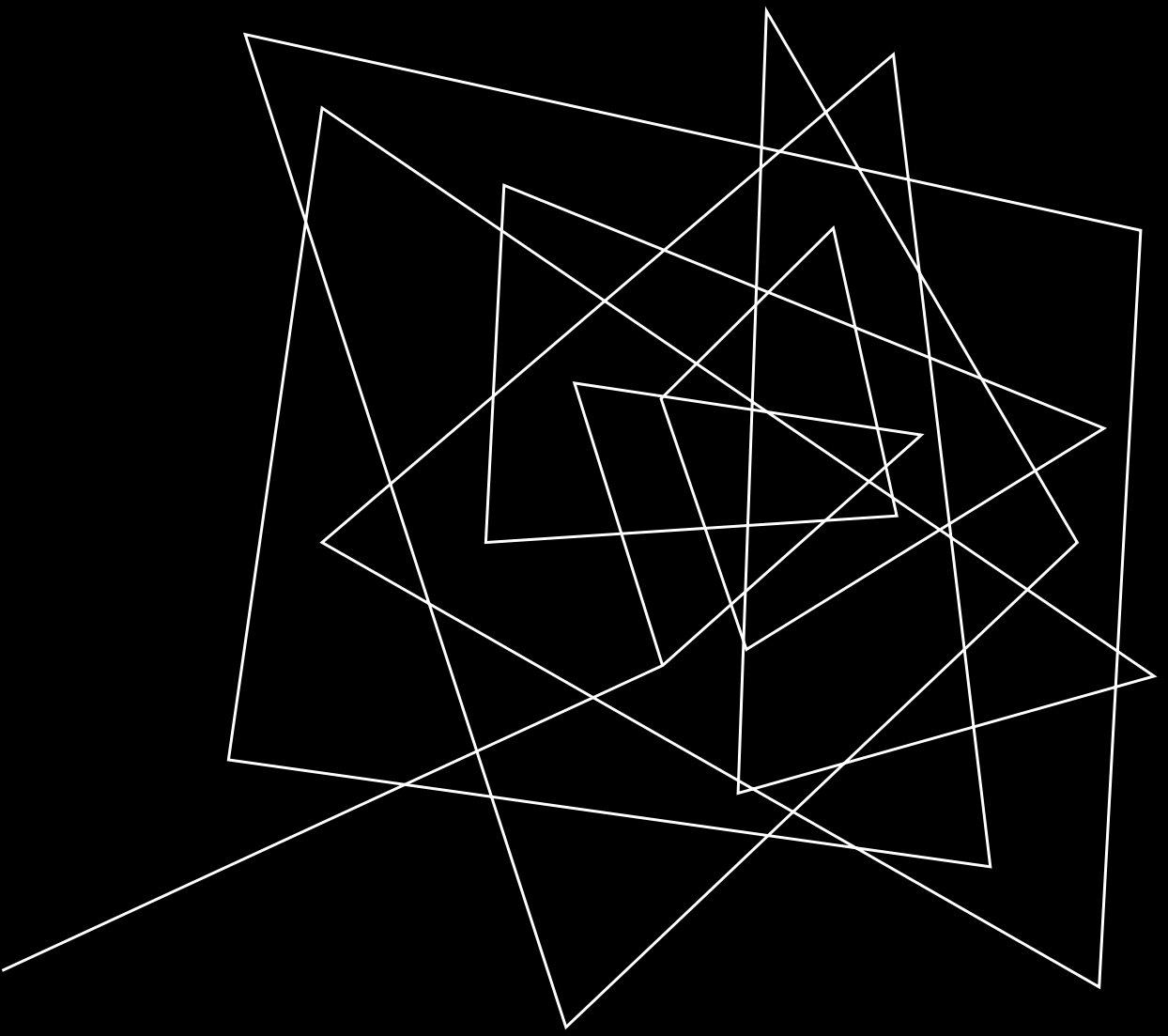
CS 691 – Computer Science Capstone Project



AGENDA

AGENDA

- Review progress towards project deadlines and milestones and discuss any delays or challenges encountered and identify solutions.
- Ensure alignment on the development progress and tasks completed and address any roadblocks hindering development and strategize solutions.
- Mark important submission dates and deadlines for the project deliverables on the shared excel sheet with everyone's schedules.
- Review presentation topics to ensure they align with project goals and discuss iterative updates to the presentation and delegate tasks accordingly.
- Brainstorm and study through personas to understand client requirements thoroughly and Identify and prioritize the necessary features and functionalities from the client's perspective.
- Discuss potential risks associated with the project and their impact and Strategize mitigation plans to address identified risks effectively.
- Emphasize the importance of interaction, attendance, cooperation, teamwork and discuss the significance of individual contributions and attention to detail for project success.
- Sync on the next steps for development, including task assignments, deadlines and Outline action items and responsibilities for each team member.
- Recap key discussion points and action items also confirm the date and time for the next meeting, if necessary and ensure open communication and collaboration among team members.



TEAM MEMBERS & ROLES

MEET OUR TEAM

SMIT

FRONT END DEVELOPER

SUJAN SIDDARTH

TESTER

KIRAN KUMAR

FULL STACK DEVELOPER

YASHKUMAR

DATABASE ADMINSTRATOR

PARTH

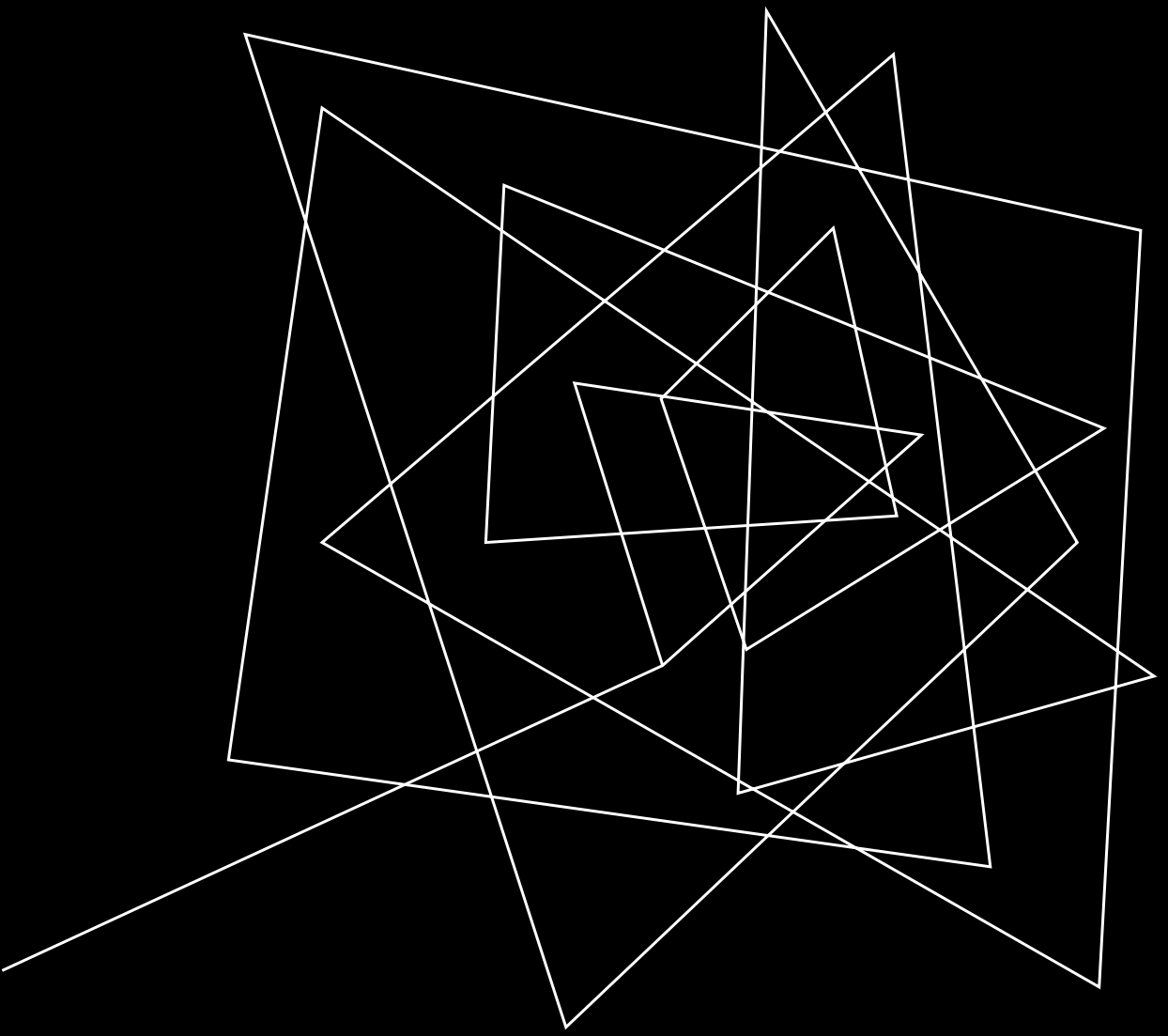
PROJECT MANAGER

SIDDHARTHKUMAR

DATA ANALYST

RAJ KOUSHIK

FULL STACK DEVELOPER



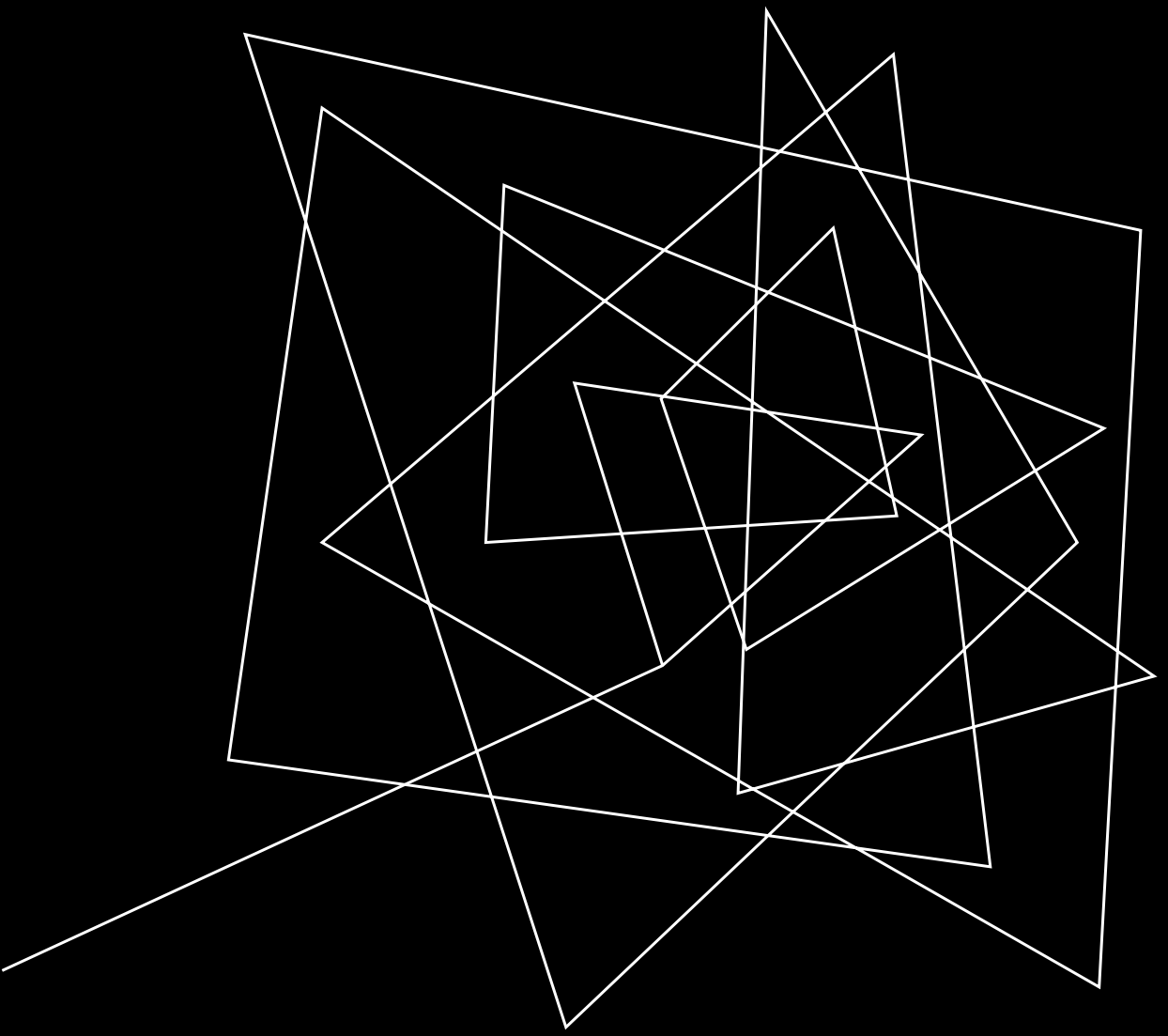
IMPROVEMENTS

PROFESSOR FEEDBACK

- Adherence to User Stories Syntax.
- Distinguishing between Task and Issue.
- Avoiding Image Compression in Slides.
- Utilizing Burndown Chart for Progress Tracking .
- Adding Numbers to Completed and Committed Ratio.

IMPROVEMENTS MADE FROM PROFESSOR FEEDBACK

- We corrected user story syntax through thorough review and training.
- We improved task and issue differentiation with standardized labels and team discussions.
- We eliminated image compression by using higher-quality resources and appropriate file formats.
- We enhanced progress tracking with consistent burndown chart usage.
- We increased reporting accuracy by adding numerical data to completed and committed ratios.



TEAM WORKING AGREEMENT

Team Working Agreement

Purpose of the agreement:

To complete Computer Science Project 1(CS 691) as smoothly as possible.

Name of the Project:

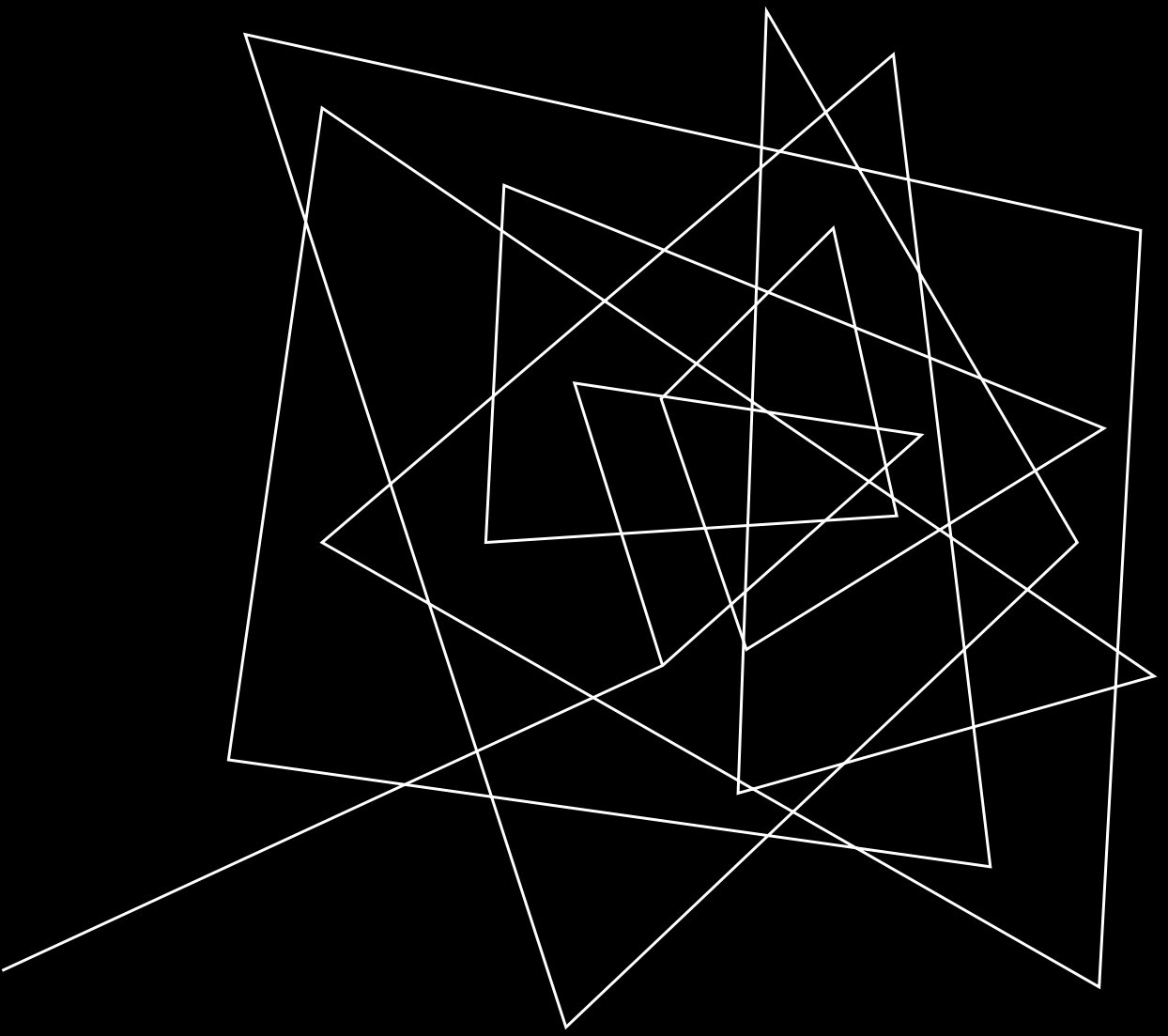
StudentHive

Terms of Agreement:

- All the team members are expected to attend the weekly meetings (Wednesday 8:00 PM) without fail.
- If in any case you are not able to join the call, you are expected to update the other team members regarding your absence.
- In the case of absence from a weekly meeting, you are expected to make it up before the next team meeting.
- The weekly meetings are held on zoom and any updates can be communicated through WhatsApp messenger.
- GitHub can be used to track and divide all our work.
- You are expected to be active on the WhatsApp messenger group chat for any updates.
- Work should be divided equally amongst the peers.
- Each team member should complete the work before the deadline. In case you are not able to do so, inform your peers so that they can divide the work accordingly. Failing to do so might lead to a decrease in the Team's grade.
- The Scrum Master is responsible for organizing the weekly meets, and everybody should be open to meet virtually more than once weekly if the situation demands it.
- Every team member is expected to be active in the weekly meetings, be productive and open to discussions and give a timely update on their part of the work.

Team Members:

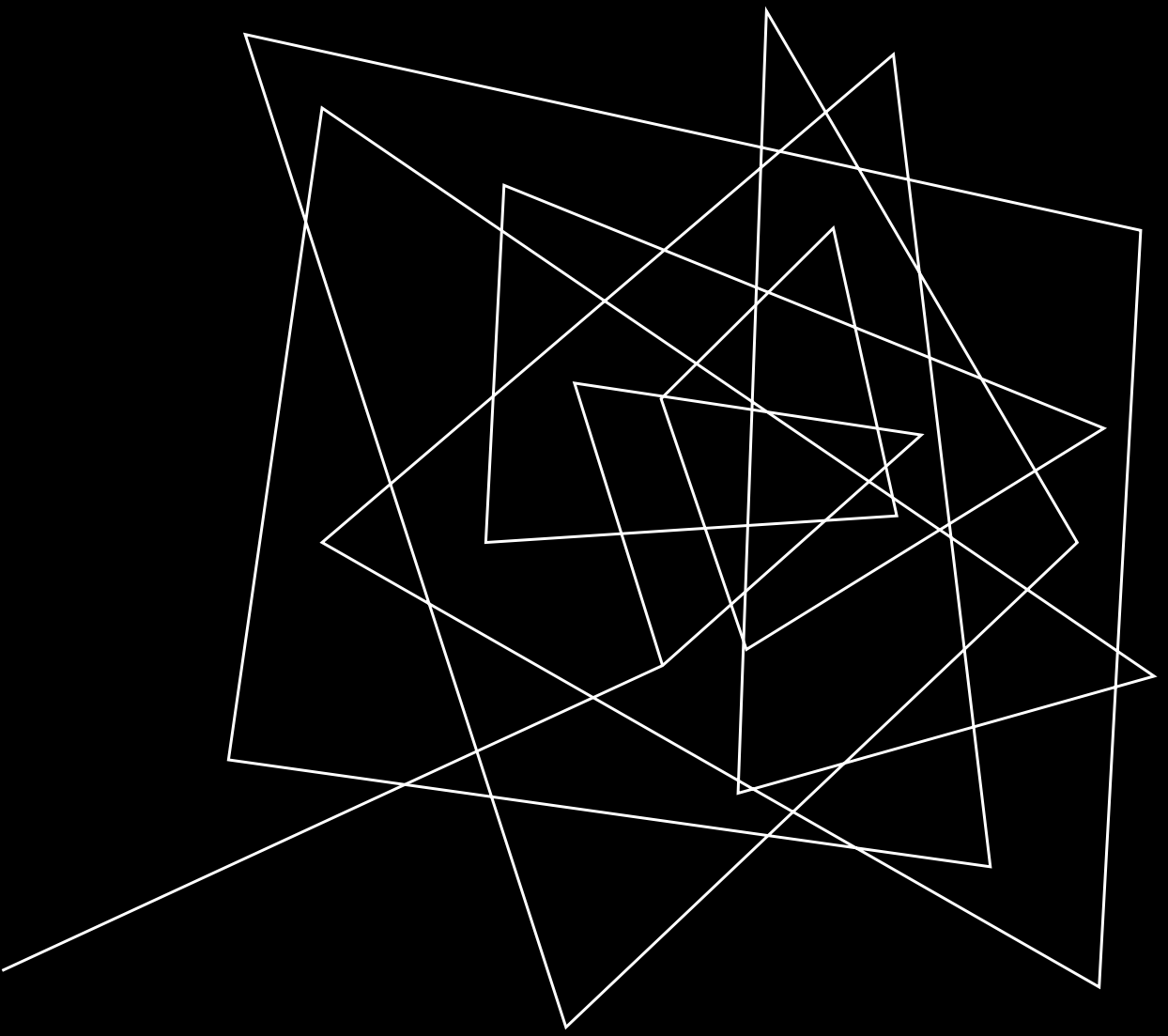
- Bhanushali, Smit
- Gowdru Karibasappa, Sujan Siddarth
- Nandula Matham, Kiran Kumar
- Patel, Yashkumar
- Patel, Parth Animeshkumar
- Patel, Siddharthkumar Kamleshbhai
- Velamarthi, Rajkoushik



PROJECT DESCRIPTION

PROJECT DESCRIPTION

"Student Hive" is a secure and convenient platform designed for students seeking shared living arrangements. By registering with their school email, users gain access to comprehensive listings tailored to their accommodation preferences and budgeting needs. Advanced search options and communication tools facilitate connections with potential roommates or landlords, while additional resources such as transportation information and nearby amenities enhance the overall living experience. With support and community engagement features available, "Student Hive" empowers students to confidently navigate their search and find the perfect accommodation suited to their needs.



PERSONAS

PERSONA 1: EMILY, BUDGET-CONSCIOUS STUDENT

Name: Emily
Age: 25
Location: Pacific Northwest, USA
Salary: $20,000 per year
Job: Graduate Student Research Assistant
Family: Single, no children

Profile: Emily is a dedicated graduate student who balances her studies with a part-time job, all while living a sustainable lifestyle.
Interests: Environmental science, outdoor activities, sustainable living practices.
Frustrations: Difficulty in finding affordable, eco-friendly housing near campus and compatible roommates.
Goals: To live in an affordable, sustainable home close to campus with roommates who share her eco-conscious values.

PERSONA 2: ALEX, INTERN/CO-OP SEEKER

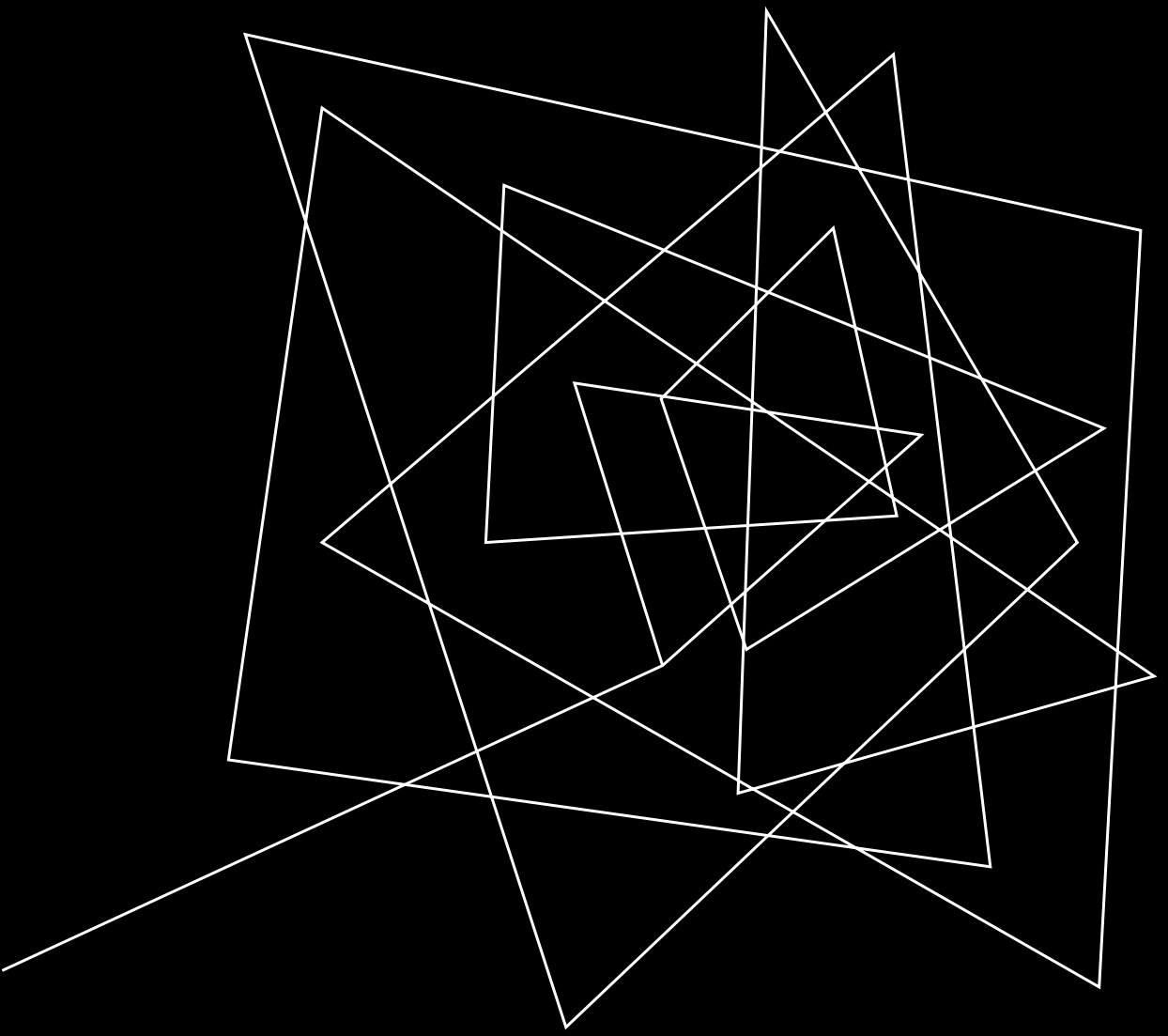
Name: Alex
Age: 22
Location: NY , USA
Salary: $8,000 (Summer Internship Stipend)
Job: Undergraduate Computer Science Student/Intern
Family: Single, no children

Profile: Alex is a focused computer science student and intern, seeking convenient housing to support her summer internship and interests.
Interests: Coding, gaming, tech meetups.
Frustrations: Challenges in finding short-term, furnished, affordable housing close to her internship.
Goals: To find flexible housing that enables her to concentrate on his internship and personal tech projects.

PERSONA 3: JORDAN, GRADUATE STUDENT/YOUNG PROFESSIONAL

Name: Jordan
Age: 27
Location: Austin, Texas, or similar vibrant city
Salary: $50,000 per year
Job: Marketing Professional/Graduate Student
Family: Single, no children

Profile: Jordan is an ambitious marketing professional and potential graduate student, seeking a lifestyle balance in an urban environment.
Interests: Photography, social media, urban exploration, cafes, co-working spaces.
Frustrations: Finding an affordable place in a desirable neighborhood that caters to her professional and social needs.
Goals: To secure a living situation that aligns with her aspirations for career growth and an active social life in a dynamic neighborhood.



MINIMAL VIABLE PRODUCT

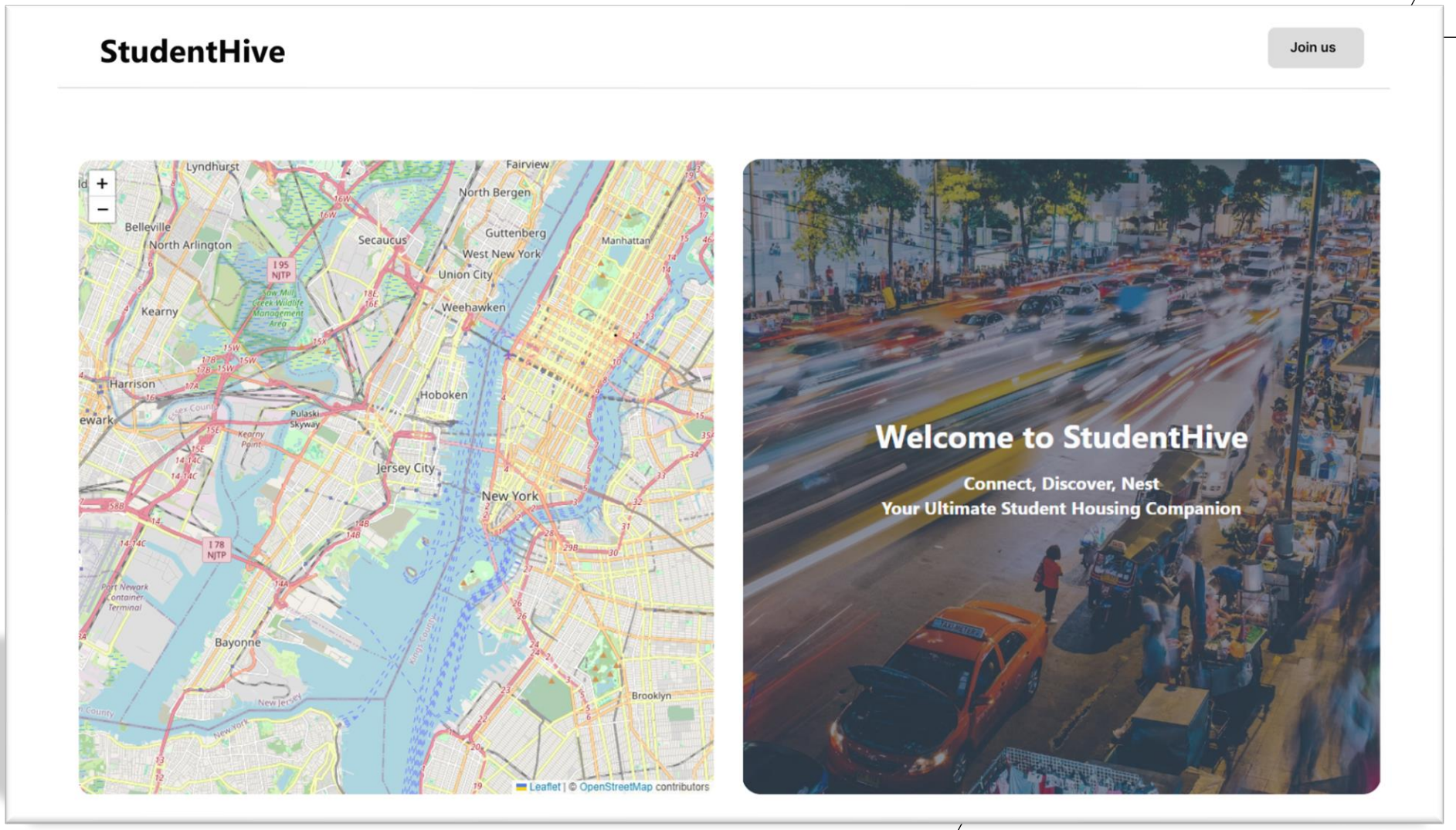
STUDENTHIVE

MINIMAL VIABLE PRODUCT (MVP)

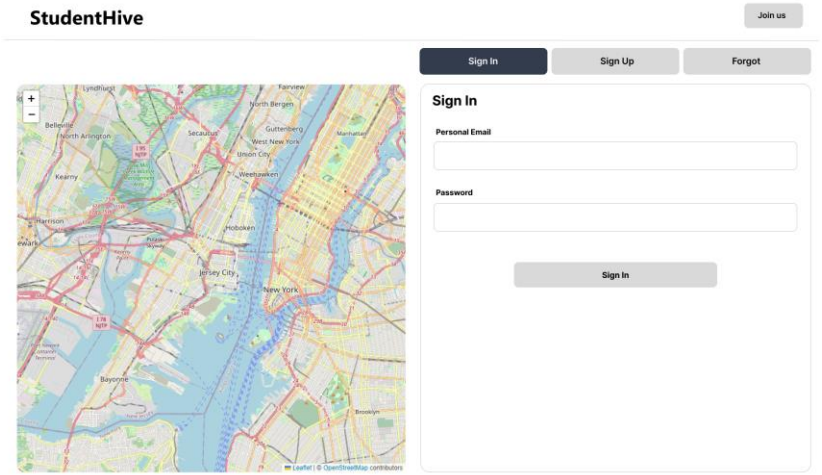
The following are the features that we are covering in our MVP:

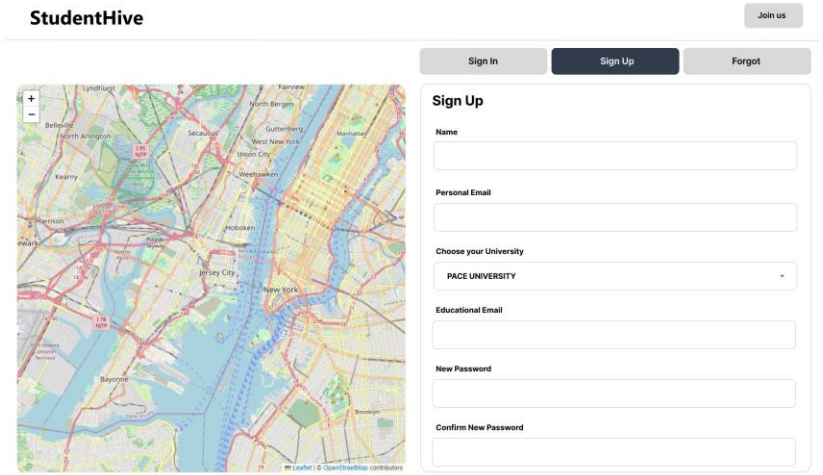
- Landing Page
- Login page with Sign In, Sign up and Forgot Password
- Home Page with Map and Listings

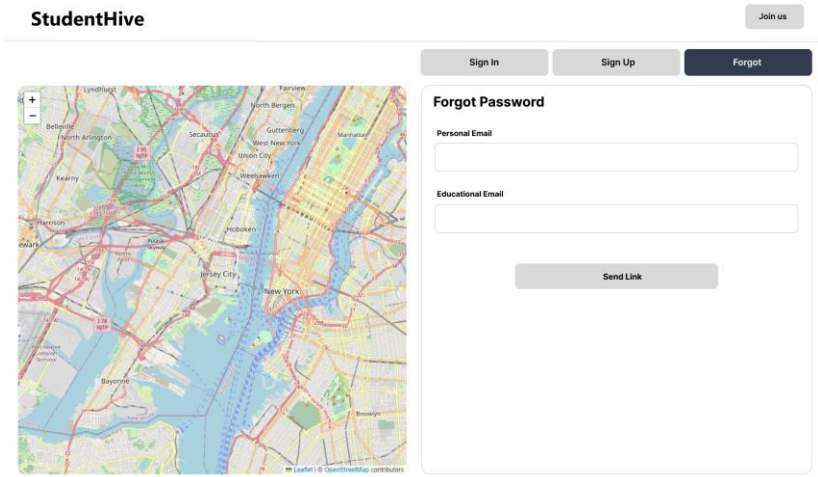
LANDING PAGE (FIGMA PROTOTYPES)



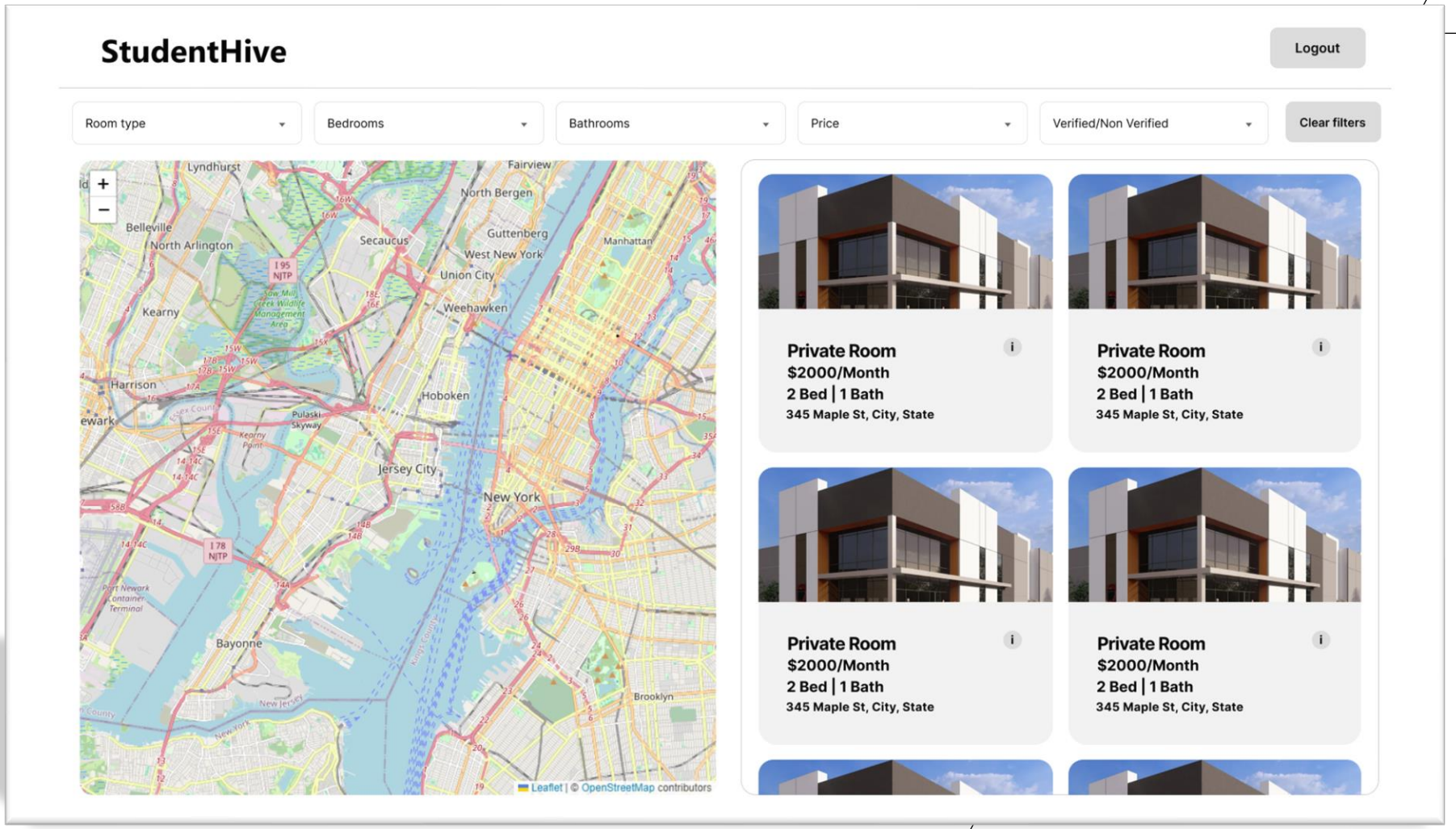
LOGIN PAGE(SIGN IN, SIGN UP, FORGOT) (FIGMA PROTOTYPES)

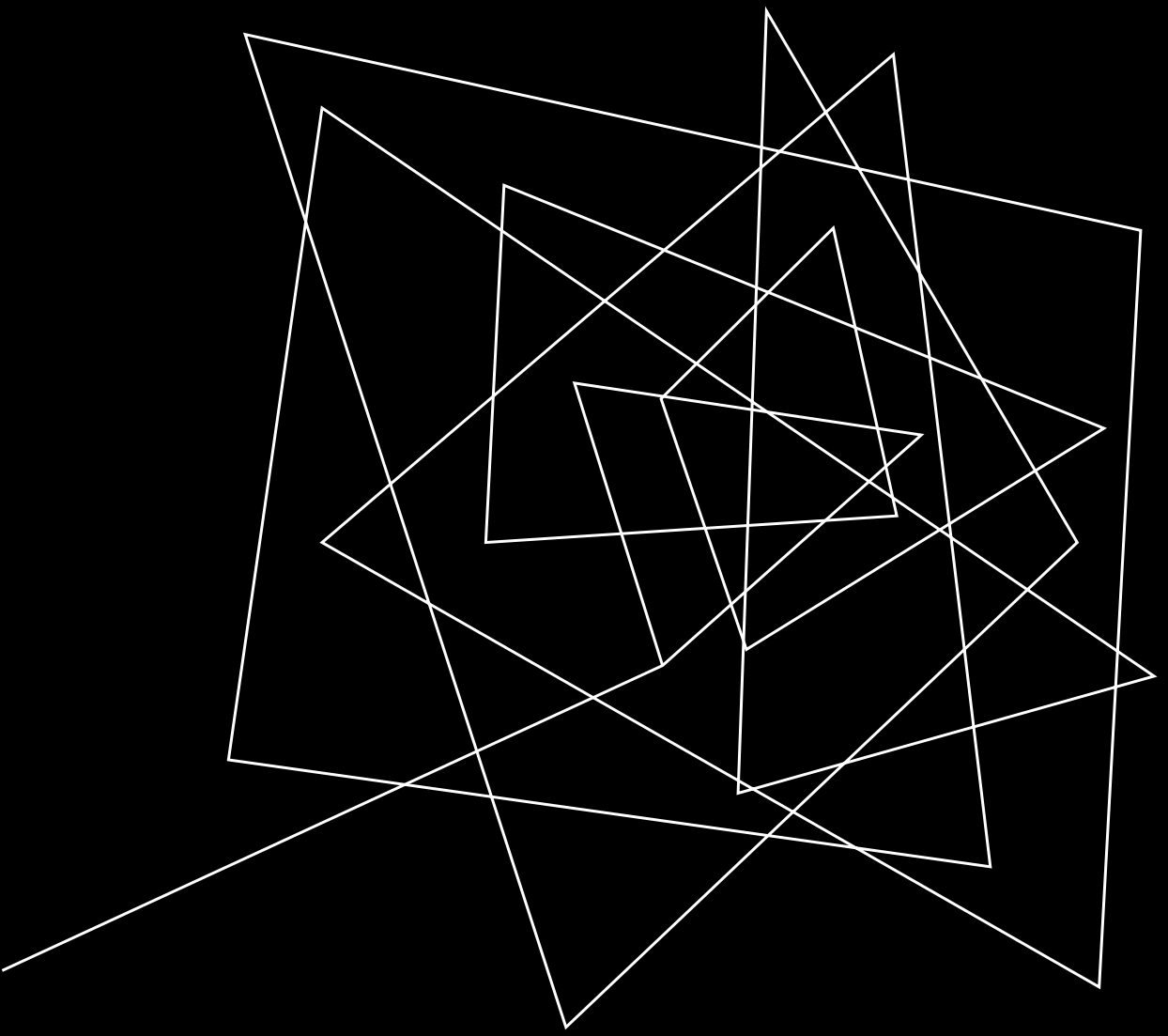






HOME PAGE (FIGMA PROTOTYPES)





TECHNOLOGIES & ALGORITHMS

TECHNOLOGIES

Front End

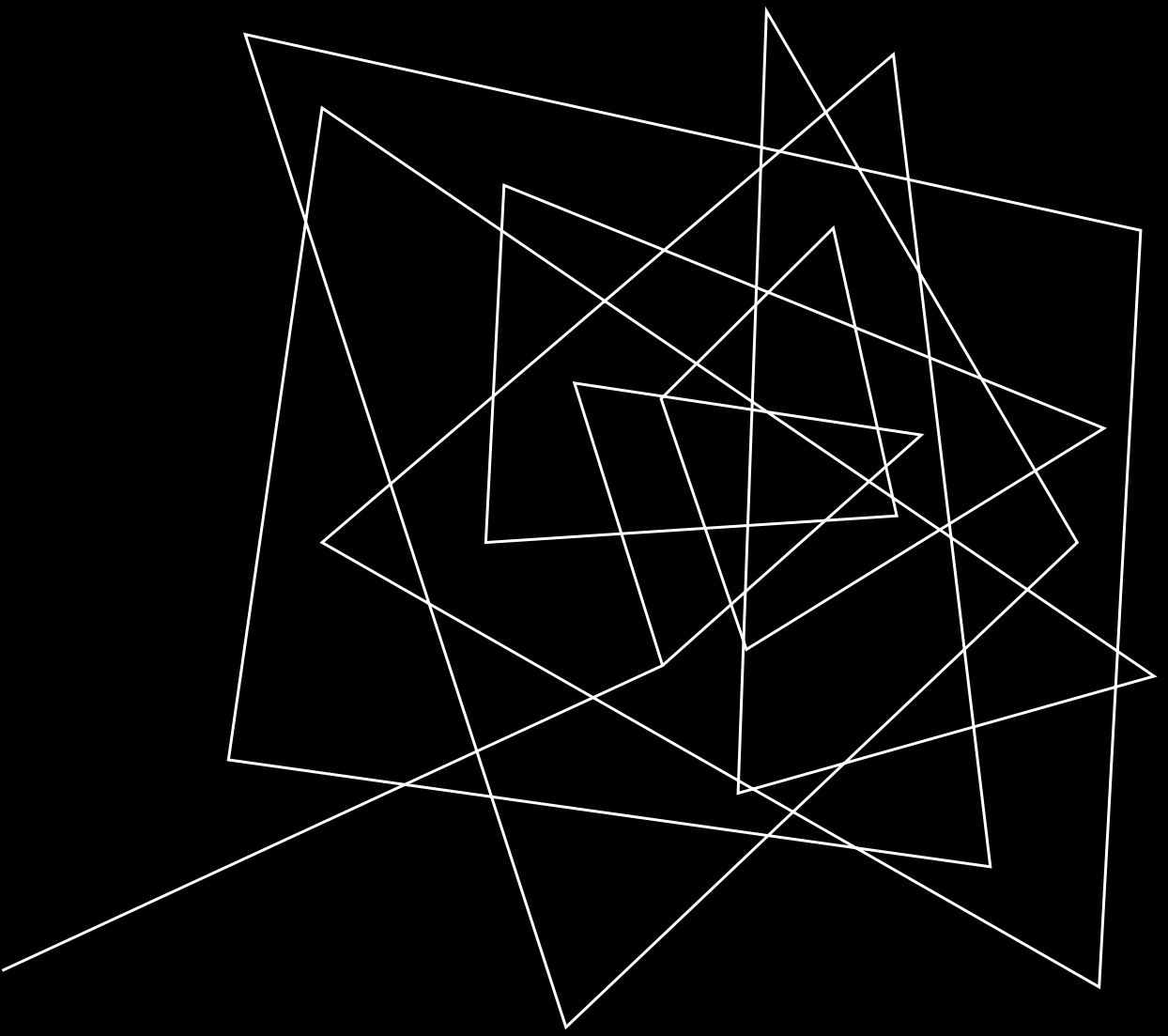
React, Oauth2.0, TanStack Query(Context API - State Management), Axios, Zod (Validation)

Back End

Node JS, Fastify, MongoDB, Passport JS(Auth), Mongoose (ORM)

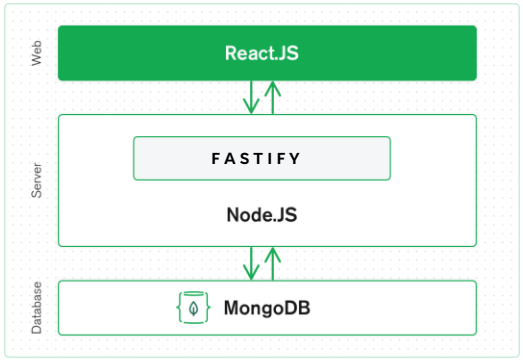
ALGORITHMS

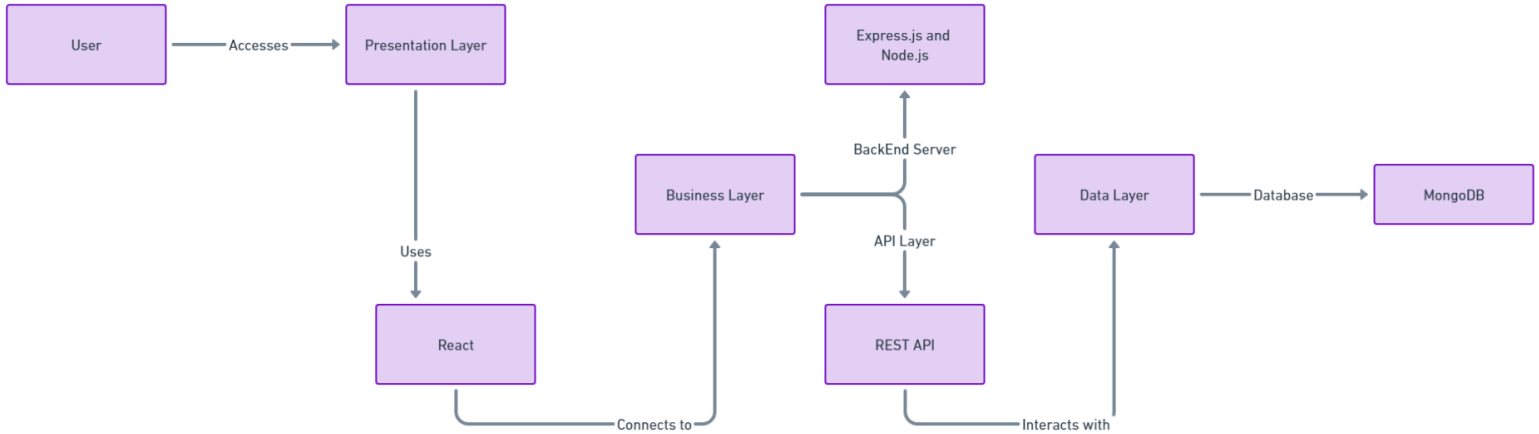
KNN, Linear Regression



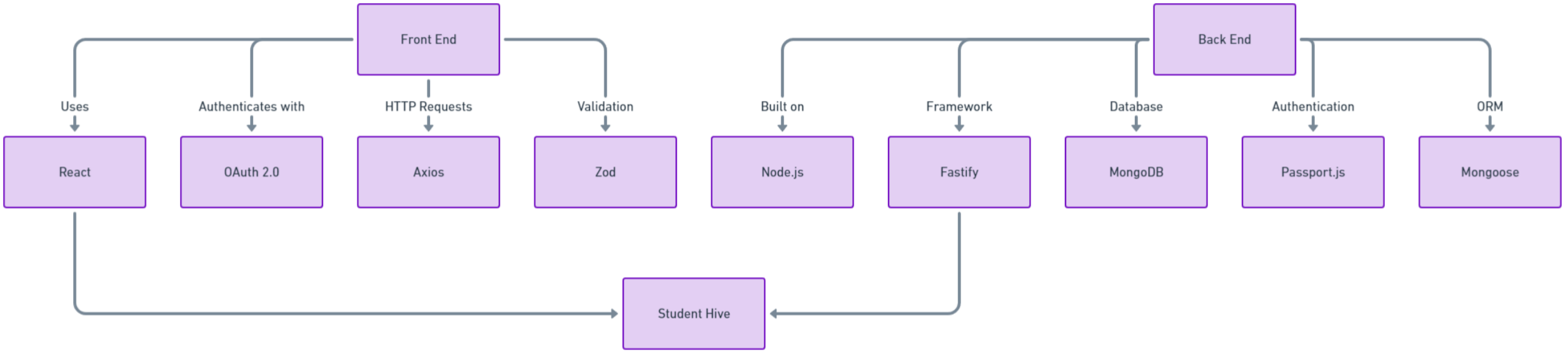
DIAGRAMS

ARCHITECTURAL DIAGRAM (THREE-TIER ARCHITECTURE)



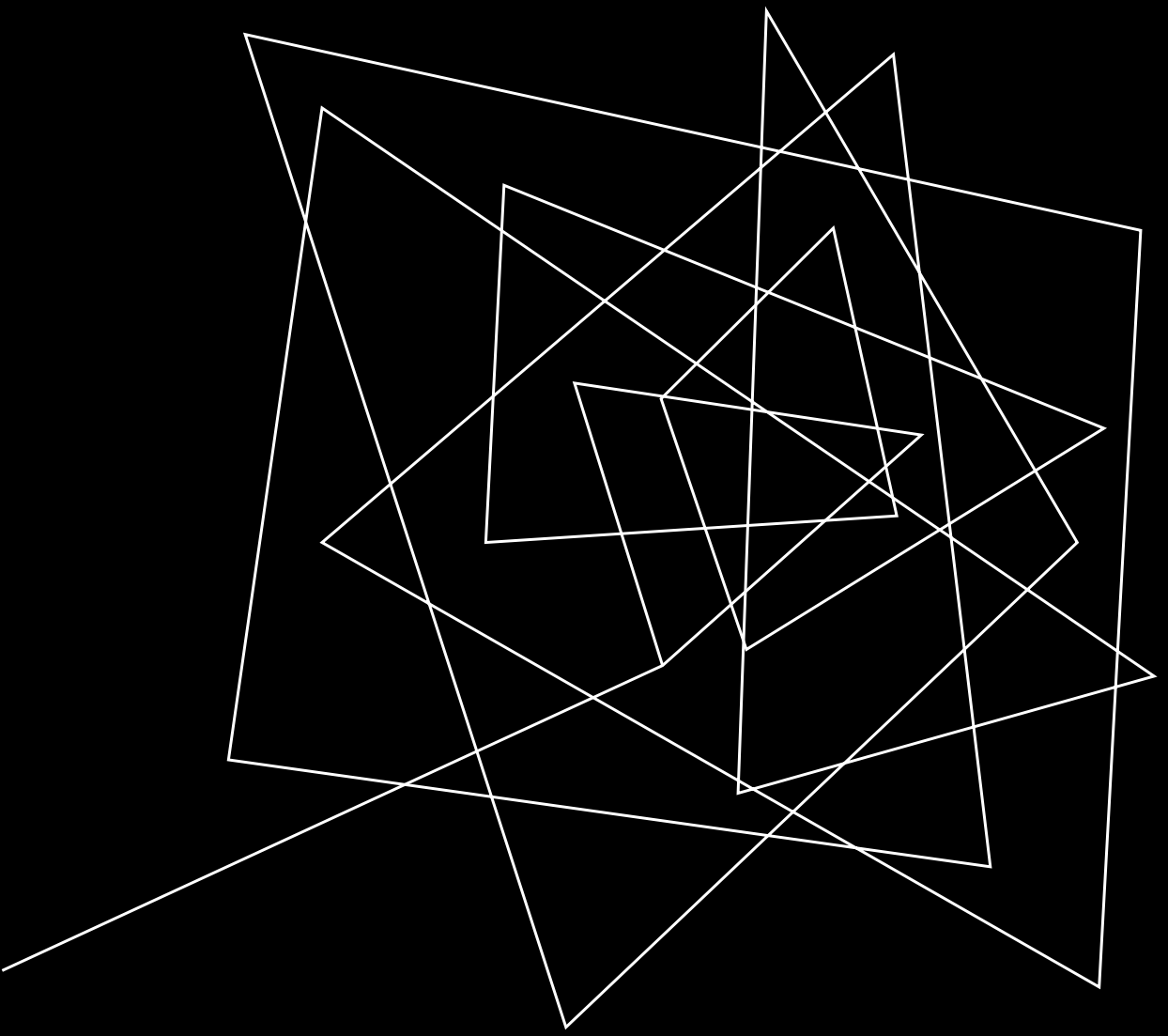


ARCHITECTURAL DIAGRAM (EXTENDED)



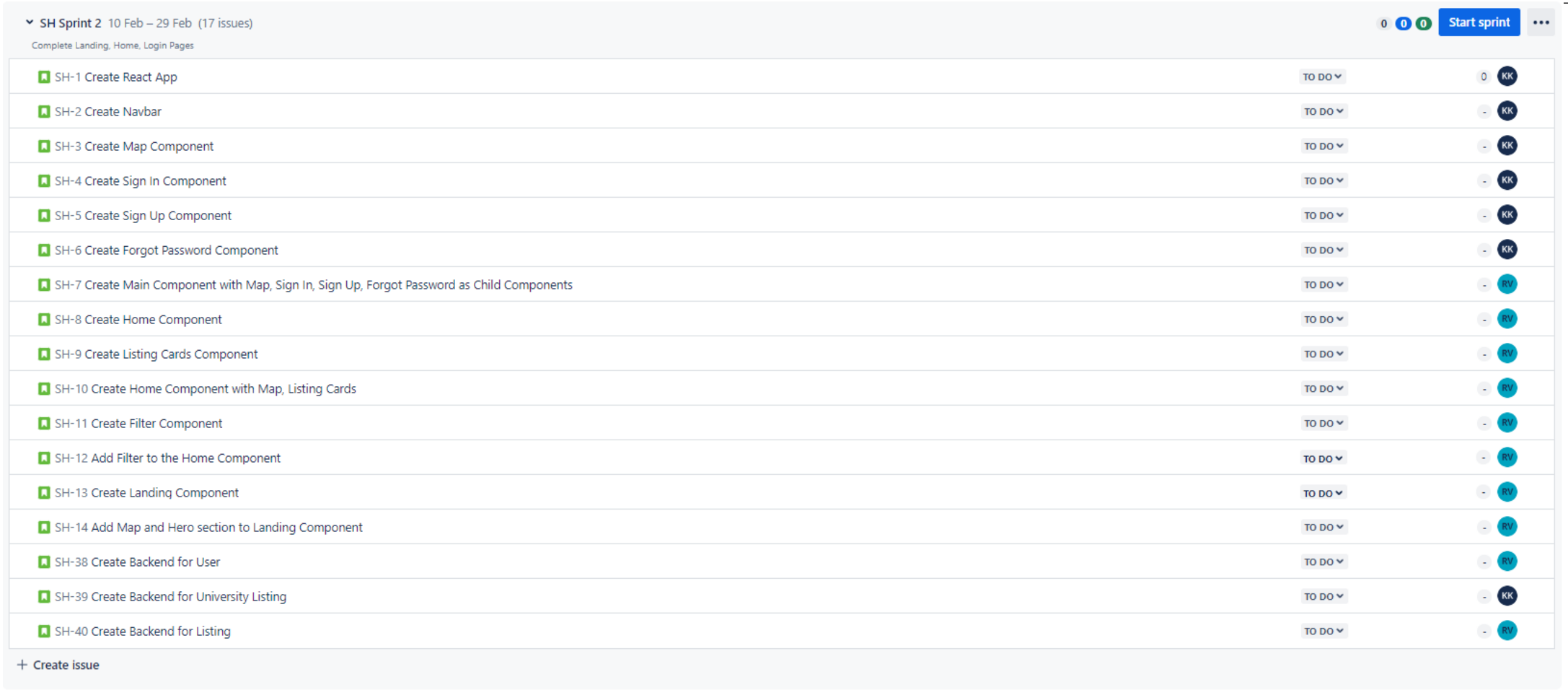
ER DIAGRAM

StudentHive MongoDB
Institution
institutionId: String (Unique)
institutionname: String (Required)
institutiondomain: String (Required)
institutionCoords: [Number] (Required)
Listing
agreement: String (Required)
TemporaryOrPermanent: String (Required)
firstUniversityPreference: String (Required)
secondUniversityPreference: String (Required)
genderPreference: String (Required)
imgSrc: String
listingId: Number (Required, Unique)
userId: Number (Required)
title: String (Required)
description: String (Required, Default: '')
price: Number (Required)
location: String (Required)
bedrooms: Number (Required)
bathrooms: Number (Required)
amenities: [String] (Required, Default: [])
isAvailable: Boolean (Required)
coordinates: [Number] (Required)
verified: Boolean (Required)
foodPreference: String (Required, Default: '')
User
userId: Number (Unique)
name: String
email: String (Unique)
password: String
eduEmail: String (Unique)
verified: Boolean
institutionName: String
institutionDomain: String
institutionCoordinates: [Number]
universityPreferenceName: String
universityPreferenceDomain: String
universityPreferenceCoordinates: [Number]
Message
messageId: String (Unique)
conversationId: String (Required)
senderId: String (Required)
receiverId: String (Required)
listedByUserId: String (Required)
listingId: String (Required)
content: String (Required)
sentAt: Date (Required, Default: Date.now)



PREVIOUS SPRINT RECAP

PREVIOUS SPRINT 2 – TASKS



SH Sprint 2 10 Feb – 29 Feb (17 issues)

Complete Landing, Home, Login Pages

0 0 0 Start sprint

SH-1 Create React App	TO DO	0 KK
SH-2 Create Navbar	TO DO	- KK
SH-3 Create Map Component	TO DO	- KK
SH-4 Create Sign In Component	TO DO	- KK
SH-5 Create Sign Up Component	TO DO	- KK
SH-6 Create Forgot Password Component	TO DO	- KK
SH-7 Create Main Component with Map, Sign In, Sign Up, Forgot Password as Child Components	TO DO	- RV
SH-8 Create Home Component	TO DO	- RV
SH-9 Create Listing Cards Component	TO DO	- RV
SH-10 Create Home Component with Map, Listing Cards	TO DO	- RV
SH-11 Create Filter Component	TO DO	- RV
SH-12 Add Filter to the Home Component	TO DO	- RV
SH-13 Create Landing Component	TO DO	- RV
SH-14 Add Map and Hero section to Landing Component	TO DO	- RV
SH-38 Create Backend for User	TO DO	- RV
SH-39 Create Backend for University Listing	TO DO	- KK
SH-40 Create Backend for Listing	TO DO	- RV

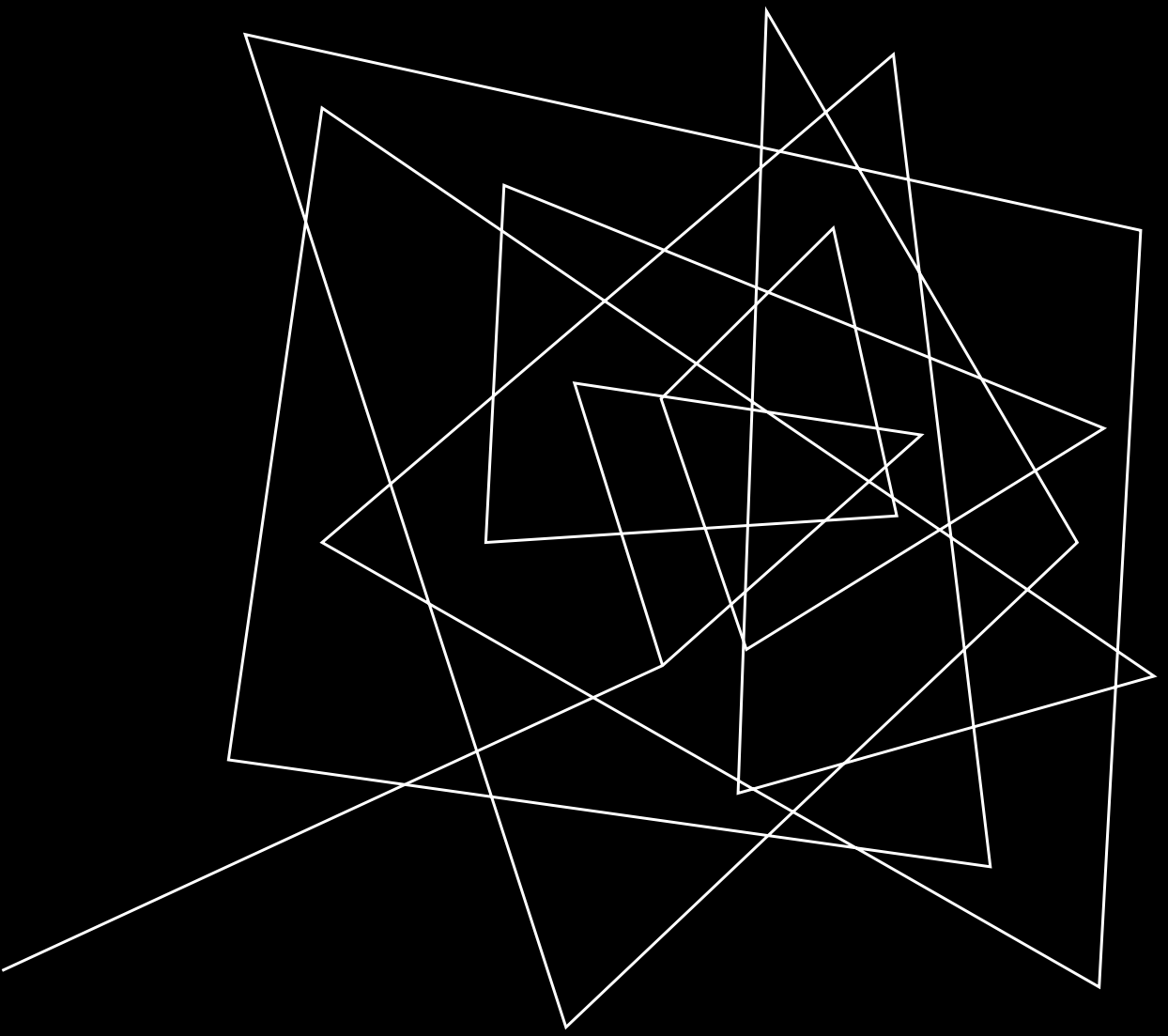
+ Create issue

PREVIOUS – SPRINT 3 – TASKS

SH Sprint 3 11 Mar – 20 Mar (12 issues) 0 0 0 Complete sprint •••

~~SH-15~~ Create Listing Component	DONE	S
~~SH-16~~ Add Map and Listing Details Component	DONE	SP
~~SH-17~~ Add Copy to Clipboard Component	DONE	S
~~SH-18~~ Add Message Component	DONE	KK
~~SH-19~~ Add Functionality of Location to the Map Component	DONE	KK
~~SH-20~~ Add details to the Listing Component	DONE	RV
~~SH-21~~ Add Amenities details to the Listing Component	DONE	KK
~~SH-22~~ Add Scrollbar to the listing details	DONE	RV
~~SH-23~~ Create Manage Component	DONE	Y
~~SH-24~~ Add Map Component	DONE	RV
~~SH-25~~ Create Profile Component	DONE	RV
~~SH-41~~ Create Backend for Messages	DONE	RV

+ Create issue



PRODUCT BACKLOG
USER STORIES

USER STORIES

Board (20 issues) 20 0 0

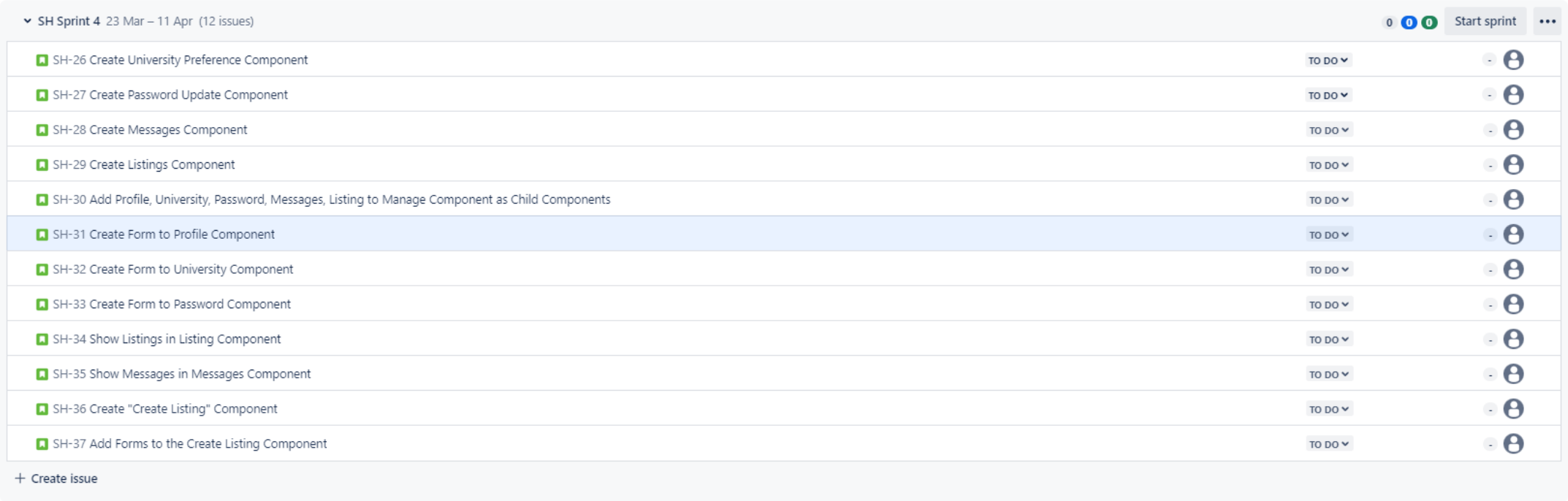
SHK-2 As a user, I want to edit my listings to update any changes in price, availability, or details to keep potential renters informed.	TO DO	
SHK-1 As a user, I want to use filters to sort listings by room type to quickly find accommodations that match my living situation preferences.	TO DO	
SHK-10 As a user, I want to sign up for Student Hive using my personal email to start my accommodation search.	TO DO	RV
SHK-9 As a user, I want to browse the home page to see a map showcasing the locations of available accommodations.	TO DO	RV
SHK-18 As a user, I want to verify my student status with my educational email after signing up to ensure access to student-specific listings.	TO DO	
SHK-7 As a user, I need a way to reset my password in case I forget it, ensuring I can regain access to my account without hassle.	TO DO	
SHK-6 As a user, I want to communicate directly with potential roommates or landlords to ask questions or express interest in a listing.	TO DO	
SHK-20 As a user, I want to filter listings based on the number of bedrooms to find accommodations that meet my space needs.	TO DO	
SHK-19 As a user, I want to view the coordinates of a listing to understand its exact location and how it fits with my needs.	TO DO	
SHK-12 As a user, I want to see listings of rentals, including houses and apartments, to explore a variety of living arrangements.	TO DO	RV
SHK-5 As a user, I want to set and update my university search preference to receive listings relevant to my campus location.	TO DO	
SHK-15 As a user, I want to report listings or users that violate platform policies to maintain a safe and respectful community.	TO DO	
SHK-16 As a user, I want to see listings of rooms, both shared and private, on the home page to find options that suit my preferences.	TO DO	RV
SHK-13 As a user, I want to remove my listings when they are no longer available to avoid receiving inquiries for occupied spaces.	TO DO	
SHK-3 As a user, I want to adjust filters based on price to find accommodations within my budget.	TO DO	RV
SHK-11 As a user, I want to change my password through my profile settings to maintain the security of my account.	TO DO	
SHK-8 As a user, I want to sign in to Student Hive using my personal email to access my account and view listings.	TO DO	RV
SHK-4 As a user, I want to create a listing with specific details such as address, price, and description to offer my space for rent.	TO DO	
SHK-17 As a user, I want to filter listings by the number of bathrooms to ensure the accommodation meets my privacy and convenience needs.	TO DO	
SHK-14 As a user, I want to manage my profile to keep my personal information up to date.	TO DO	

+ Create issue

USER STORIES – SPRINT 4

~~SHK-2~~ As a user, I want to edit my listings to update any changes in price, availability, or details to keep potential renters informed.	DONE	RV
~~SHK-18~~ As a user, I want to verify my student status with my educational email after signing up to ensure access to student-specific listings.	DONE	KK
~~SHK-5~~ As a user, I want to set and update my university search preference to receive listings relevant to my campus location.	DONE	PP
~~SHK-15~~ As a user, I want to report listings or users that violate platform policies to maintain a safe and respectful community.	DONE	SP
~~SHK-13~~ As a user, I want to remove my listings when they are no longer available to avoid receiving inquiries for occupied spaces.	DONE	S
~~SHK-4~~ As a user, I want to create a listing with specific details such as address, price, and description to offer my space for rent.	DONE	SK
~~SHK-17~~ As a user, I want to filter listings by the number of bathrooms to ensure the accommodation meets my privacy and convenience needs.	DONE	Y
~~SHK-14~~ As a user, I want to manage my profile to keep my personal information up to date.	DONE	RV

SPRINT 4 – TASKS



ACCEPTANCE CRITERIA

Issue Type	ID	Summary	Acceptance Criteria	Place
Feature	1	Sign up with personal email	Scenario: New user registration Given the user is on the Sign-Up page When the user inputs a personal email address and completes the registration form Then the user receives a confirmation email to complete the signup process	Login Page
Feature	2	Verify student status with educational email	Scenario: Verifying student status Given the user has signed up with a personal email When the user enters an educational email address for verification Then the user receives a verification email at the educational email address And upon clicking the verification link, the user's profile is marked as verified	Manage Profile
Feature	3	Sign in with personal email	Scenario: User login Given the user has an account When the user enters their personal email and password on the login page Then the user is successfully logged into their account	Login Page
Feature	4	Password reset functionality	Scenario: Resetting a forgotten password Given the user has forgotten their password When the user clicks on "Forgot Password" and enters their email address Then the user receives a password reset email And upon following the instructions in the email, the user can successfully reset their password	Login Page
Feature	5	Browse listings with a map view	Scenario: Viewing listings on a map Given the user is on the Home Page When the user navigates to the map view of listings Then the user can see pins on the map representing available accommodations	Home Page
Feature	6	Filter listings by accommodation type	Scenario: Filtering listings by accommodation type Given the user is on the Listings Page When the user selects an accommodation type (shared, private) from the filter options Then the listings are updated to only show the selected accommodation type	Home Page
Feature	7	Filter listings by number of bedrooms	Scenario: Filtering listings by bedrooms Given the user is on the Listings Page When the user selects a specific number of bedrooms from the filter options Then the listings are updated to only show options with the selected number of bedrooms	Home Page
Feature	8	Filter listings by price	Scenario: Filtering listings by price Given the user is on the Listings Page When the user specifies a price range Then the listings are updated to only show options within the specified price range	Home Page

ACCEPTANCE CRITERIA

Feature	9	Create a listing	Scenario: Creating a new listing Given the user is logged in and on the Create Listing page When the user inputs all required details for the listing and submits it Then the listing is created and visible on the platform	Create Listing Page
Feature	10	Edit a listing	Scenario: Editing an existing listing Given the user is logged in and owns a listing When the user edits the listing details and saves the changes Then the updated listing reflects the changes made	Manage Listings Page
Feature	11	Remove a listing	Scenario: Removing a listing Given the user is logged in and owns a listing When the user chooses to remove one of their listings Then the listing is no longer visible on the platform	Manage Listings Page
Feature	12	View listing details	Scenario: Viewing detailed listing information Given the user is browsing listings When the user selects a listing to view more details Then the user is presented with detailed information including amenities, price, and location	Listing Page
Feature	13	Manage profile information	Scenario: Updating profile information Given the user is logged in When the user goes to Profile Settings and updates their information Then the user's profile information is updated accordingly	Mange Profile
Feature	14	Direct communication with potential roommates or landlords	Scenario: Messaging a listing owner Given the user is interested in a listing When the user sends a message to the listing owner via the platform's messaging feature Then the message is successfully sent and can be viewed in the Messages section	Messages Page
Feature	15	Manage messages from other users	Scenario: Managing received messages Given the user is logged in and has received messages When the user goes to the Messages section to view and respond to messages Then the user can successfully manage their messages including reading, replying to, and deleting messages	Messages Page

TEST CASES

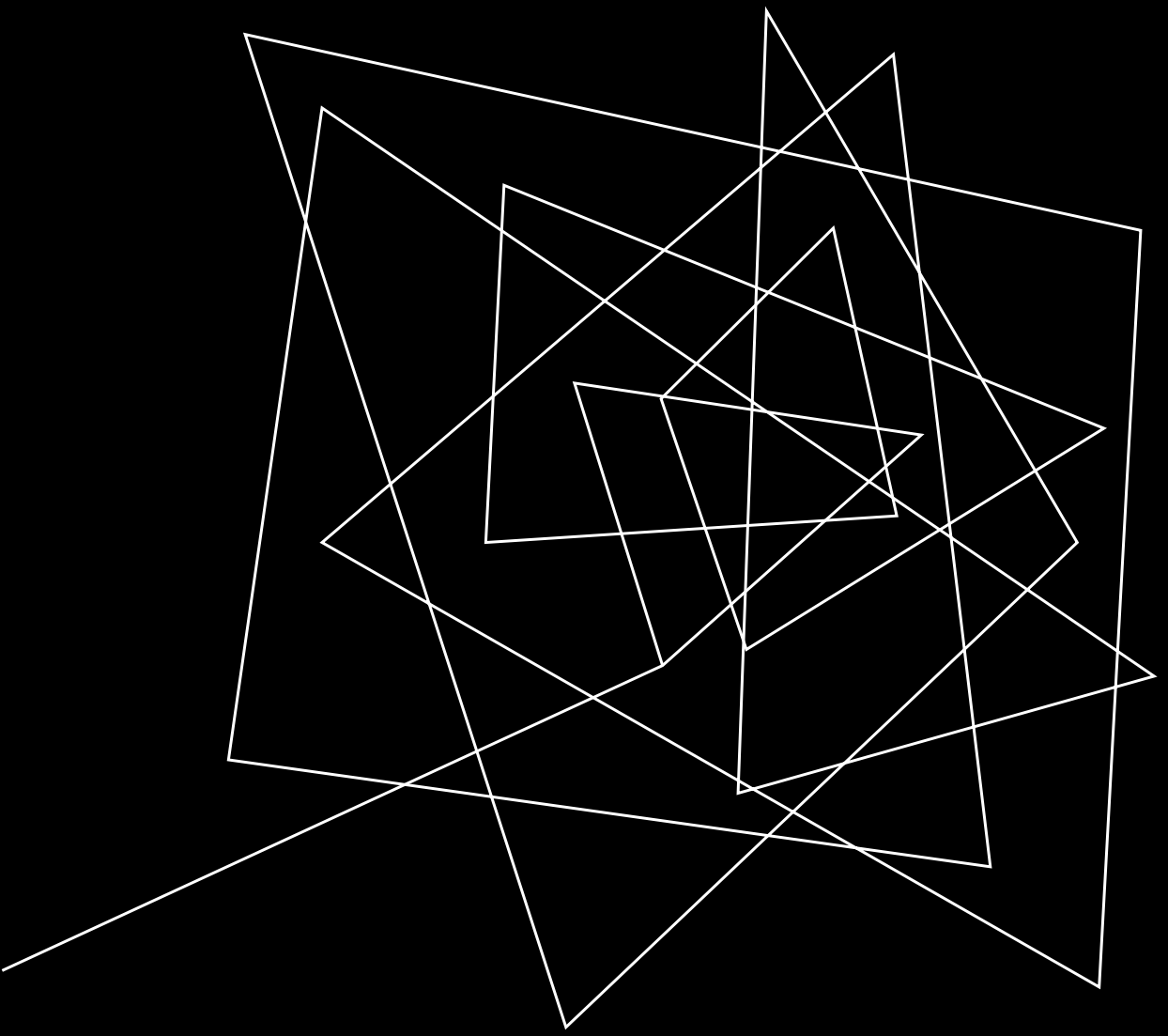
TestCa	UserSt	Unit to Test	Assumptions	TestData	Steps to be Executed	Expected Results
TC15	SH-26	University Preference Component	User is logged in and on the profile page	Preferred university: PACE University	1. Go to Manage and University page. 2. Click on "Edit Ui	Preferred university is updated.
TC16	SH-27	Password Update Component	User is logged in and on the account setting	Current and new password	1. Go to Manage and Password page. 2. Click on "Chang	Password is successfully updated.
TC17	SH-28	Messages Component	User is logged in and on the messages page	Message content: "Hello"	1. Go to Manage and messages page. 2. Select a contac	The message is successfully sent.
TC18	SH-29	Create Listings Component	User is logged in and on the create listing pa	Listing details: Apartment with 2 bed	1. Go to Manage and Profile Page. Create listing page. 2.	The new listing is successfully created.

STORIES COMPLETED

~~SHK-2~~ As a user, I want to edit my listings to update any changes in price, availability, or details to keep potential renters informed.	DONE	RV
~~SHK-18~~ As a user, I want to verify my student status with my educational email after signing up to ensure access to student-specific listings.	DONE	KK
~~SHK-5~~ As a user, I want to set and update my university search preference to receive listings relevant to my campus location.	DONE	PP
~~SHK-15~~ As a user, I want to report listings or users that violate platform policies to maintain a safe and respectful community.	DONE	SP
~~SHK-13~~ As a user, I want to remove my listings when they are no longer available to avoid receiving inquiries for occupied spaces.	DONE	S
~~SHK-4~~ As a user, I want to create a listing with specific details such as address, price, and description to offer my space for rent.	DONE	SK
~~SHK-17~~ As a user, I want to filter listings by the number of bathrooms to ensure the accommodation meets my privacy and convenience needs.	DONE	Y
~~SHK-14~~ As a user, I want to manage my profile to keep my personal information up to date.	DONE	RV

STORIES NOT COMPLETED

NO PENDING STORIES



METRICS

TEAM VELOCITY

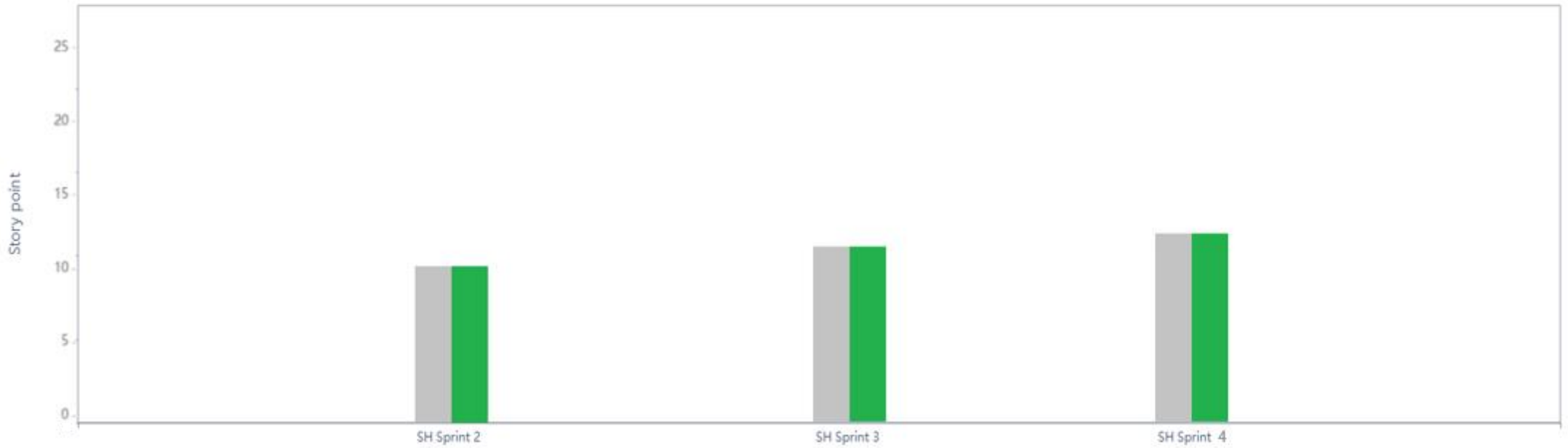
Projects / Student-Hive / Reports

Velocity report

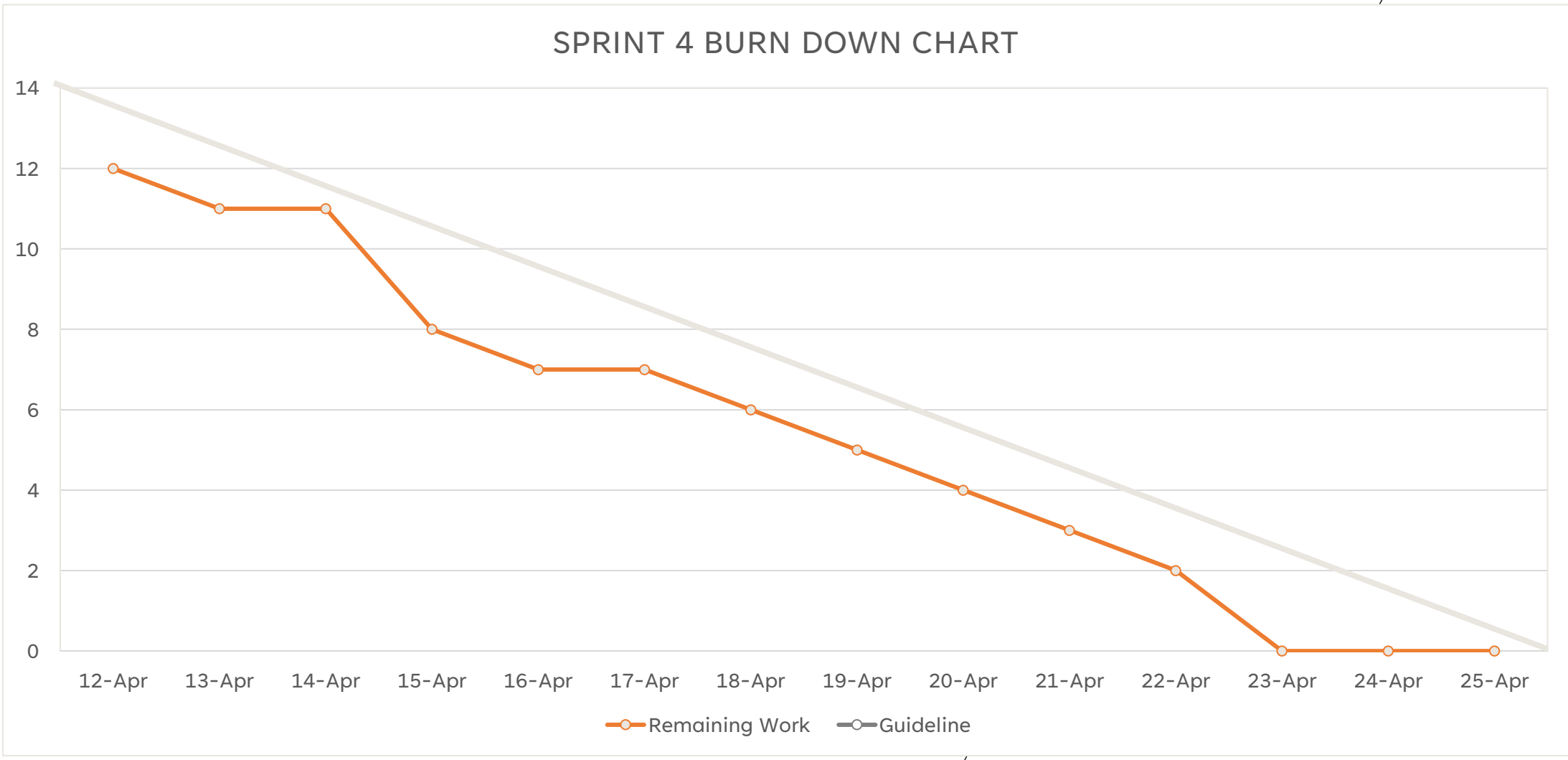
› How to read this report

Commitment
The amount of work in the sprint when it began.

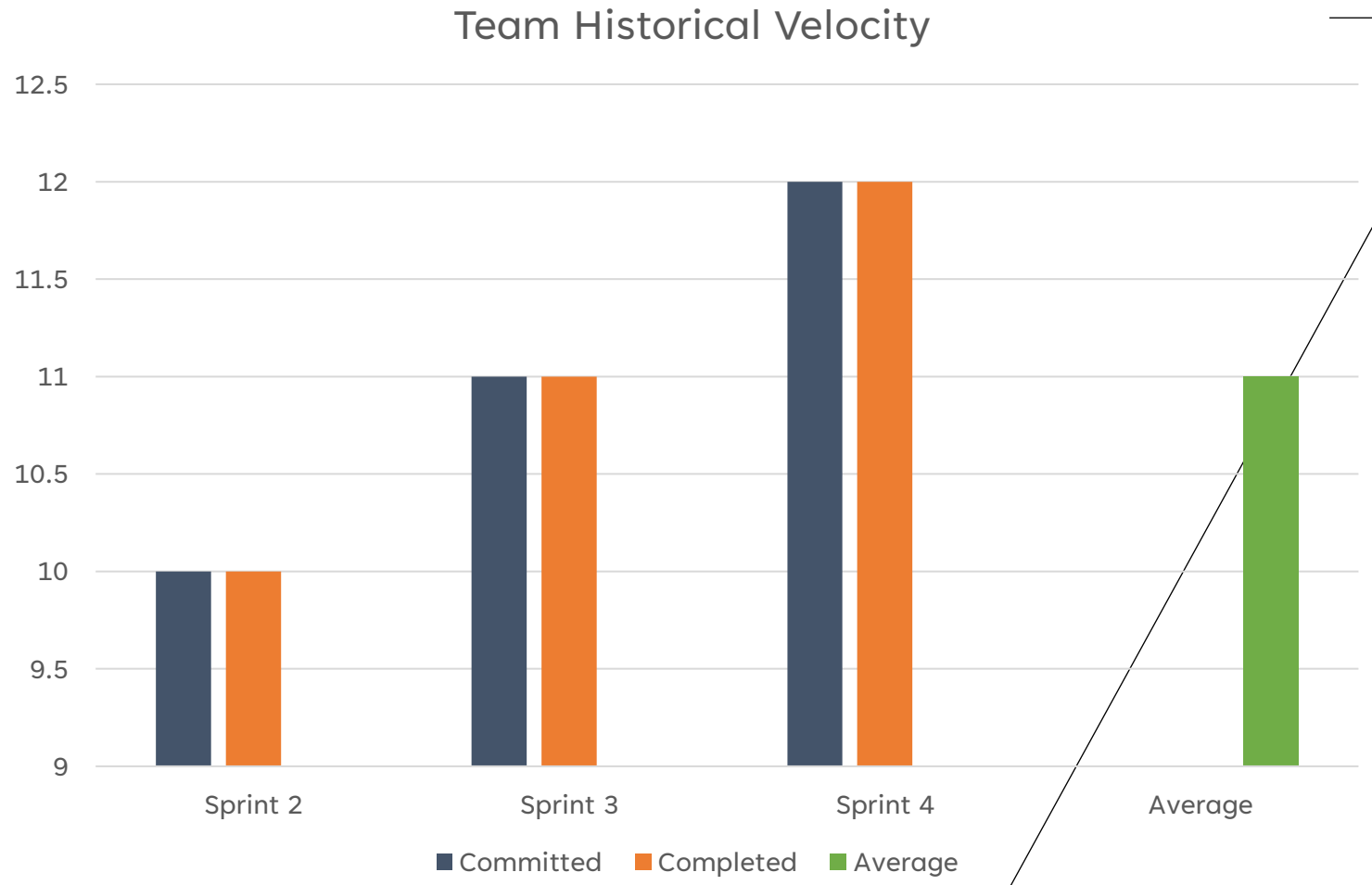
Completed
The amount of work done during the sprint.



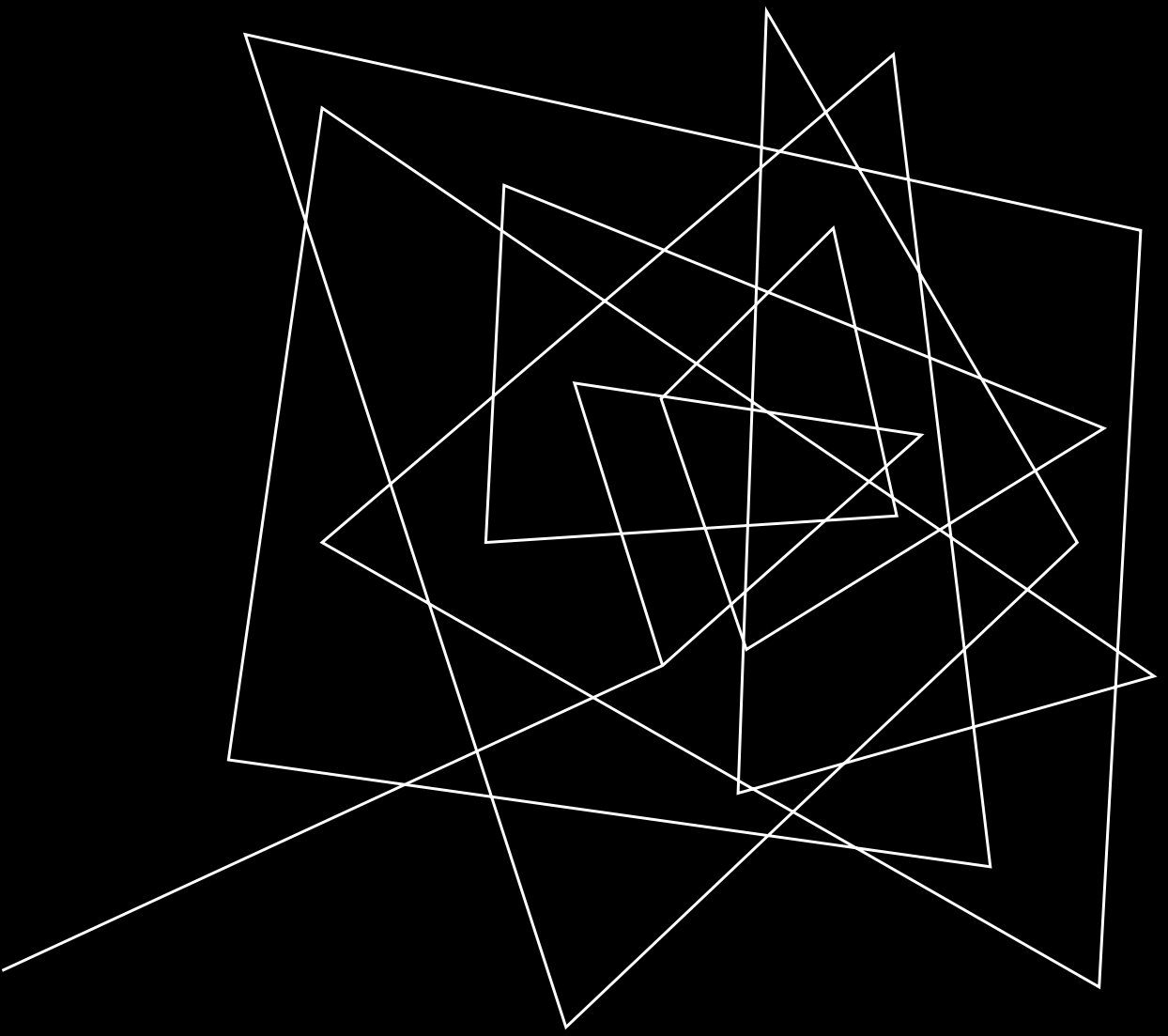
SPRINT BURN DOWN CHART



TEAM HISTORICAL VELOCITY



COMPLETED COMMITTED RATIO



RETROSPECTIVE

WHAT WENT WELL

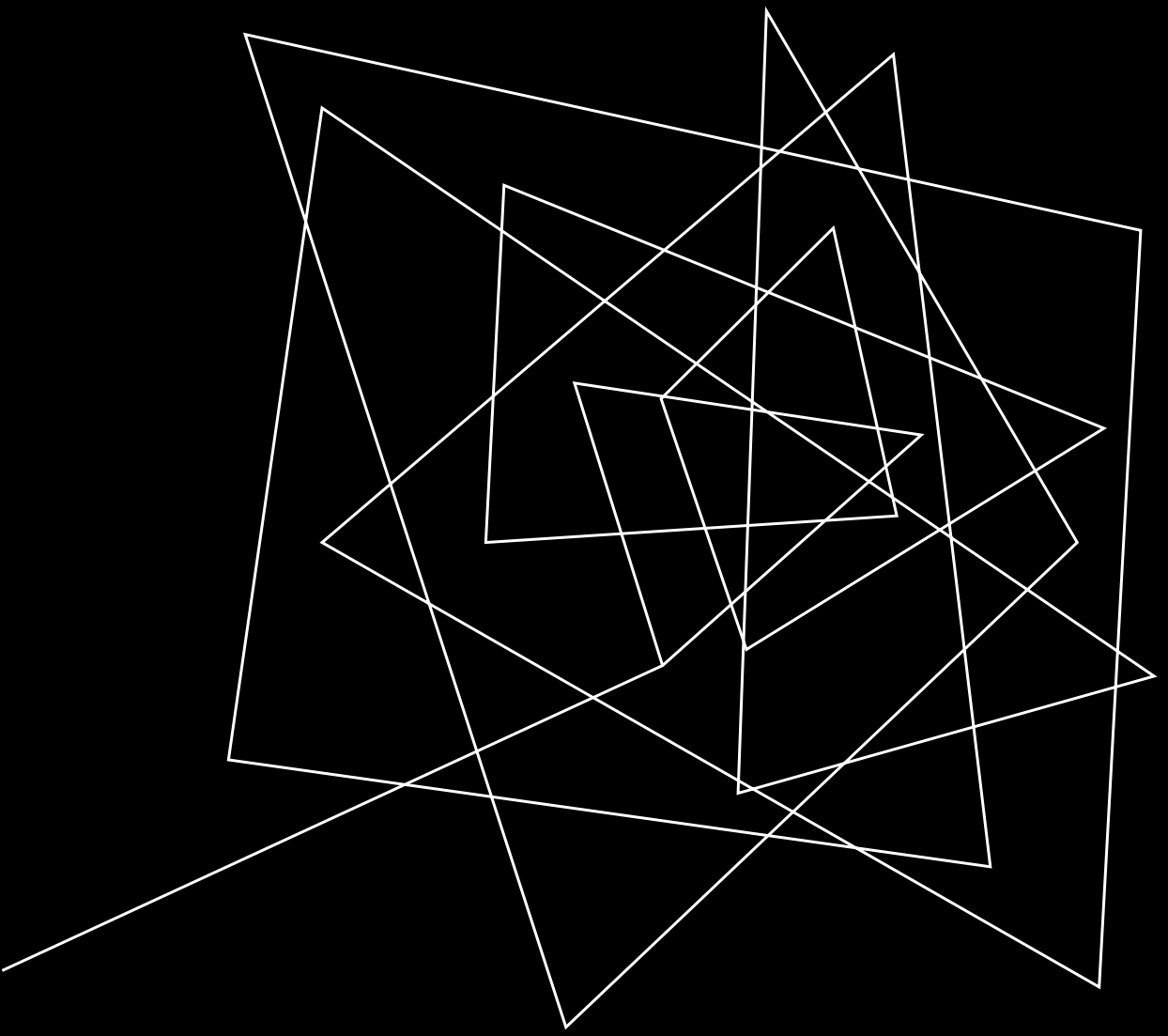
- Efficient communication within the team facilitated smooth progress.
- Timely completion of milestones ensured project stayed on track.
- Flexibility in adapting to unforeseen challenges led to innovative problem-solving.

WHAT NEEDS IMPROVEMENTS

- Clarifying roles and responsibilities to avoid overlaps and streamline workflow.
- Enhancing documentation to improve knowledge sharing and onboarding.
- Implementing stronger risk management strategies to mitigate potential setbacks.

NEXT STEPS

- Conducting a thorough post analysis to extract valuable lessons learned.
- Refining project management processes based on retrospective findings.
- Implementing actionable insights to enhance efficiency and effectiveness in future endeavors.



SPRINT 5

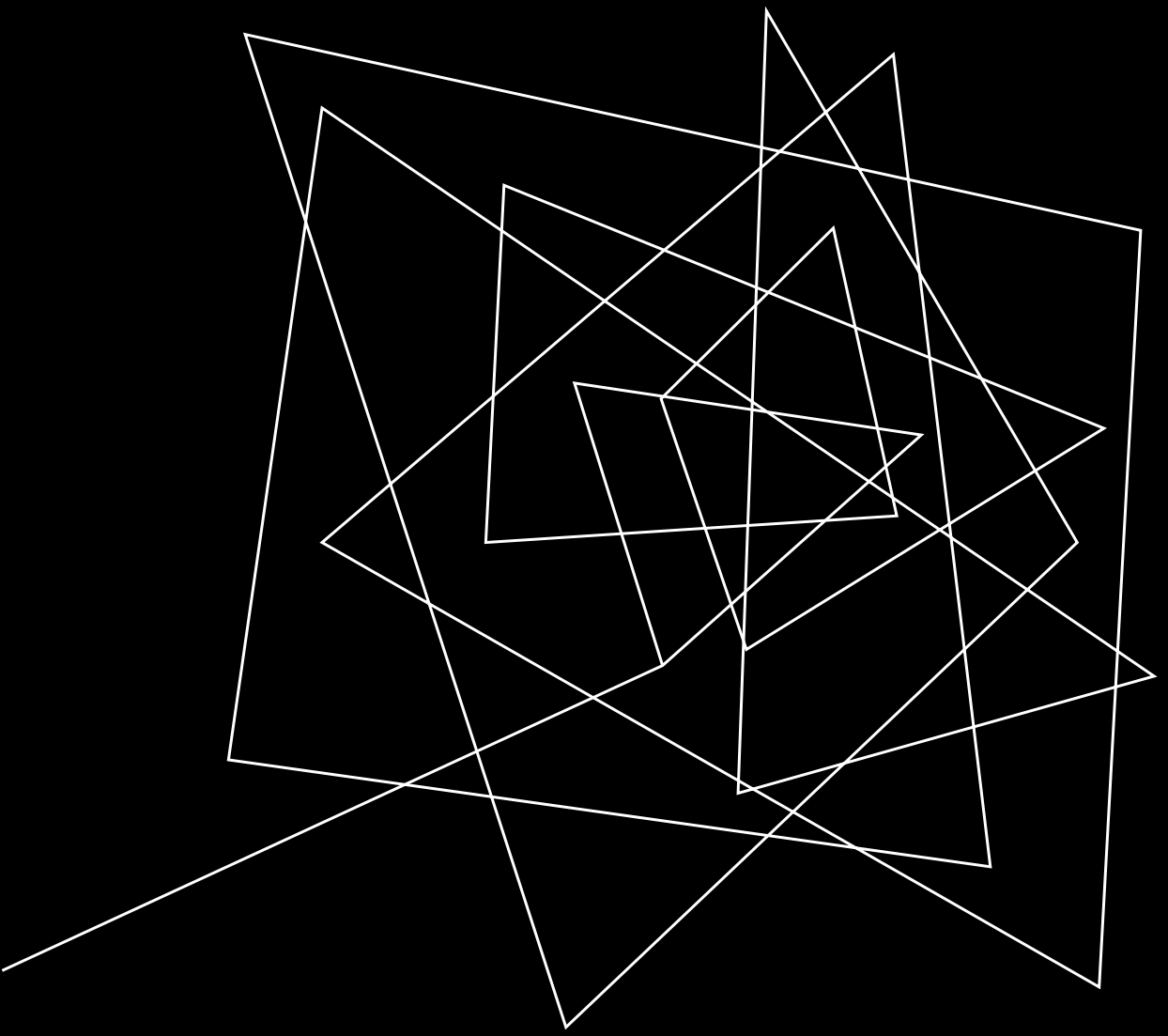
SPRINT 5 - TASKS

12 issues | Estimate: 5

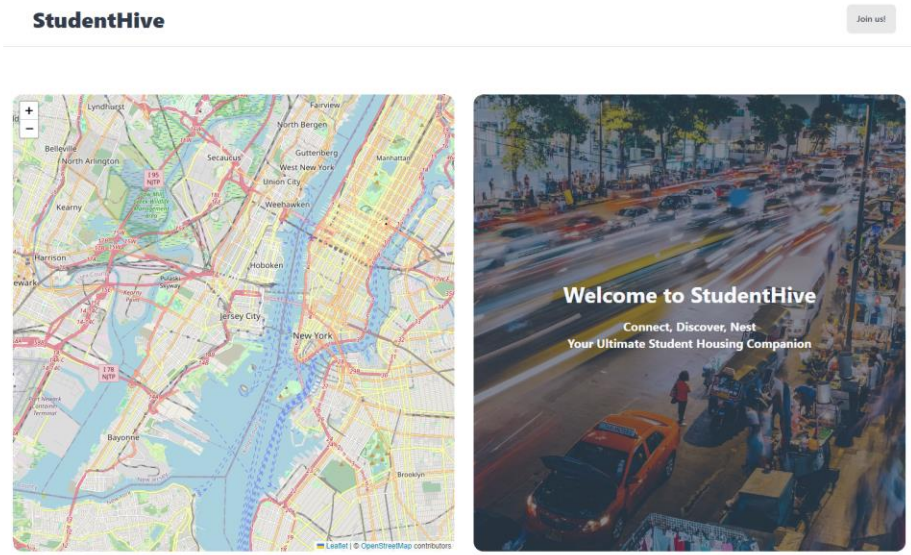
SH Sprint 5 Add dates (9 issues) 0 0 0 Start sprint

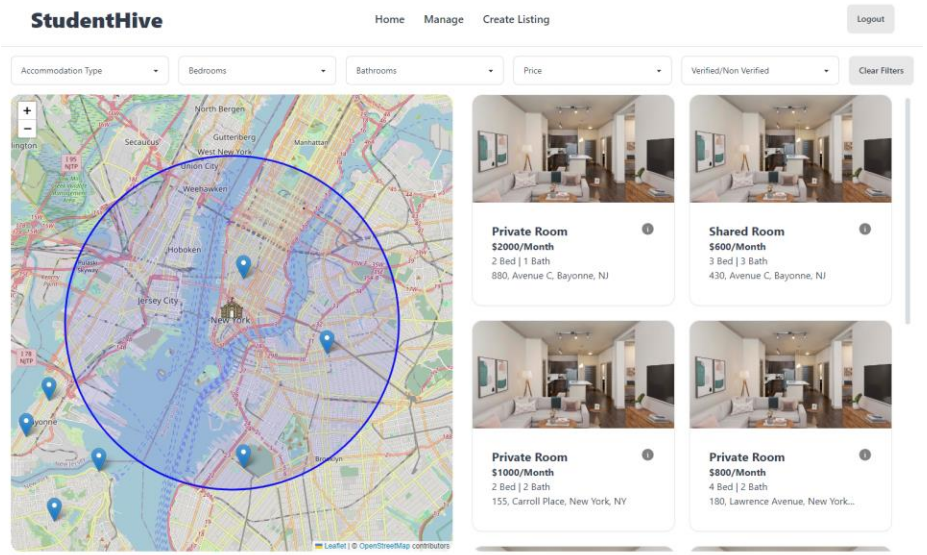
SH-42 Add Attachments in Messaging Component	TO DO	-
SH-43 Add Report Functionality to Database	TO DO	-
SH-44 Add more Filters to Filter Component	TO DO	-
SH-45 Add Near by Feature in Listing Component	TO DO	-
SH-46 Add Walk Score Feature in Listing Component	TO DO	-
SH-47 Add User Onboarding Feature	TO DO	-
SH-48 Add 360 Degree View of Listing	TO DO	
SH-49 Add 2 Factor Authentication	TO DO	
SH-50 Add Suggested Listings based on Visited Listings	TO DO	

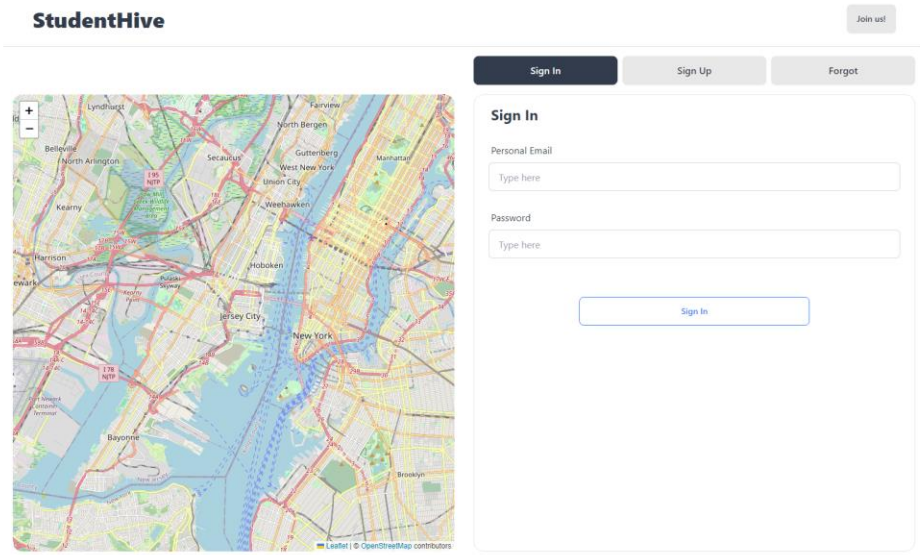
+ Create issue

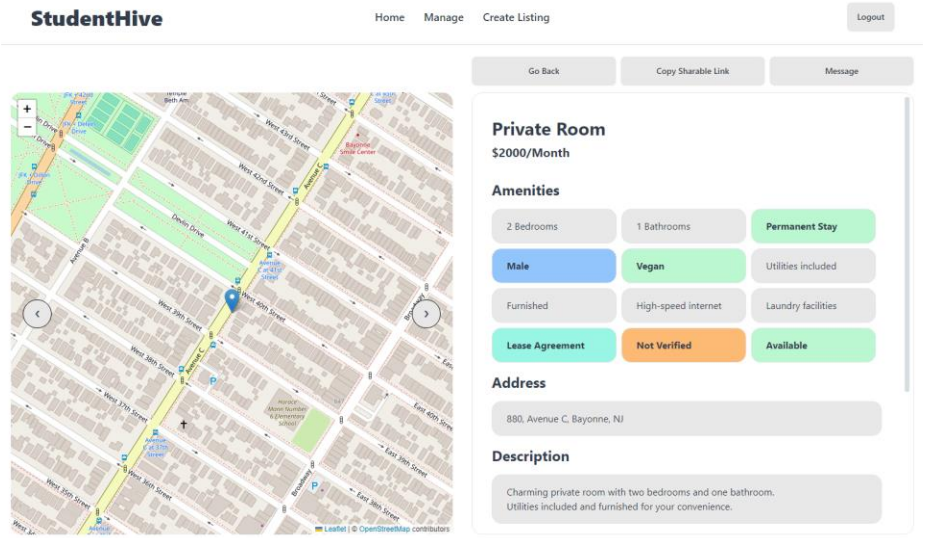


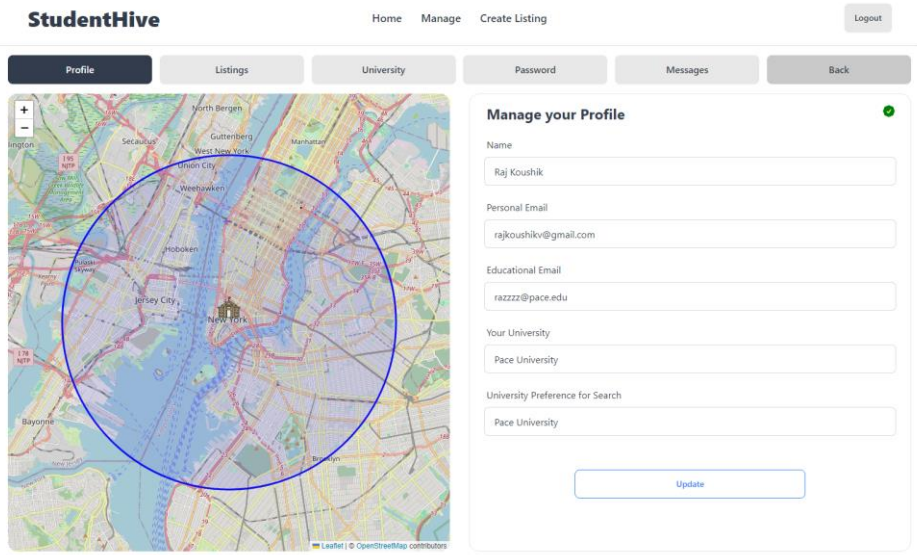
PROJECT DEMO

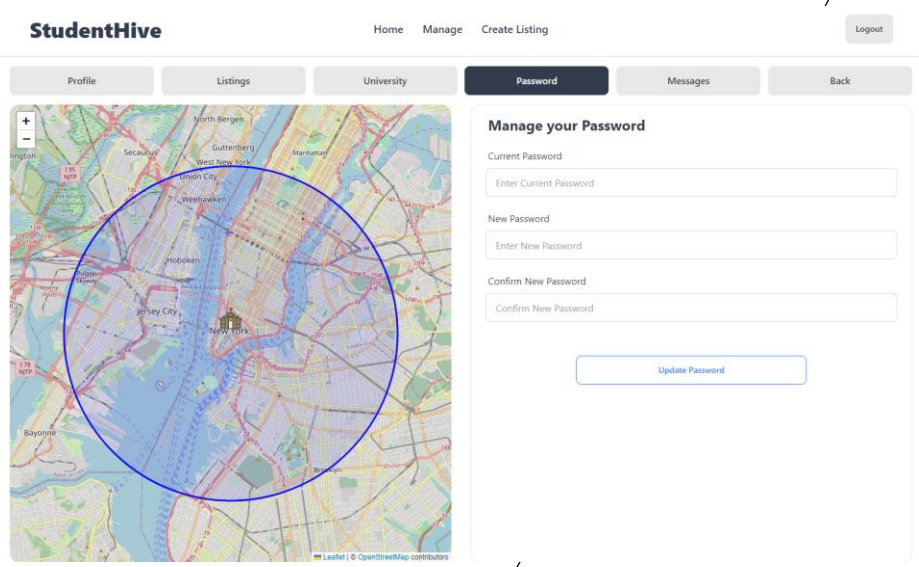

StudentHive
Join us!
Welcome to StudentHive
Connect, Discover, Nest
Your Ultimate Student Housing Companion

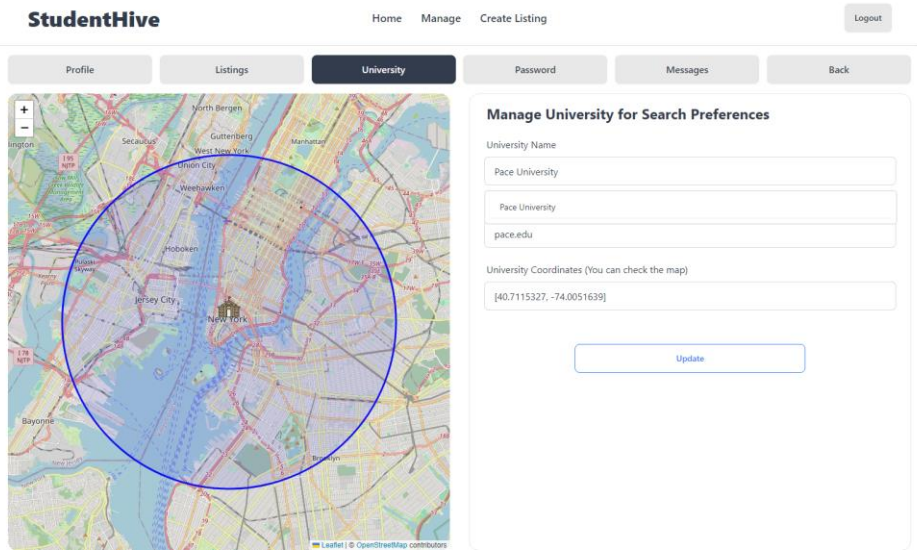

StudentHive
Home
Manage
Create Listing
Logout
Accommodation Type
Bedrooms
Bathrooms
Price
Verified/Non Verified
Clear Filters
Private Room
$2000/Month
2 Bed | 1 Bath
880, Avenue C, Bayonne, NJ
Shared Room
$600/Month
3 Bed | 3 Bath
430, Avenue C, Bayonne, NJ
Private Room
$1000/Month
2 Bed | 2 Bath
155, Carroll Place, New York, NY
Private Room
$800/Month
4 Bed | 2 Bath
180, Lawrence Avenue, New York...

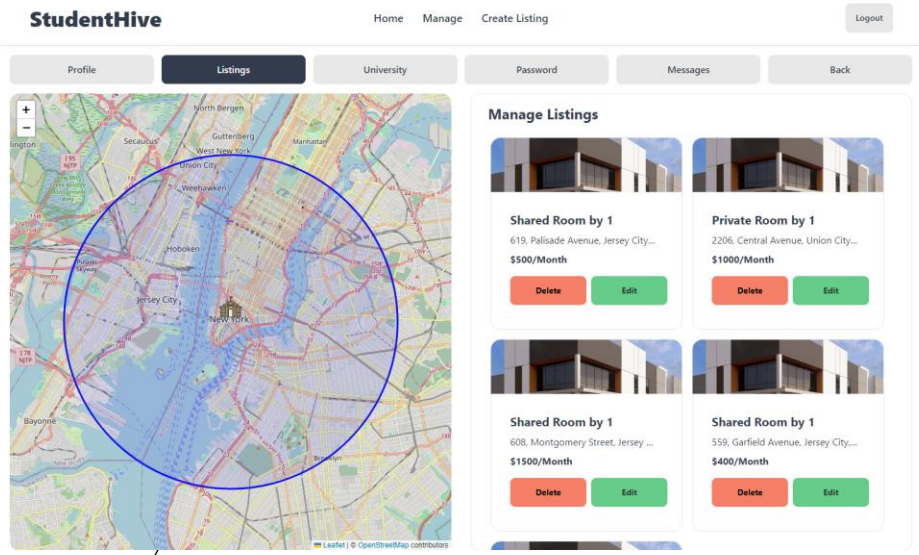

StudentHive
Join us!
Sign In
Sign Up
Forgot
Sign In
Personal Email
Type here
Password
Type here
Sign In

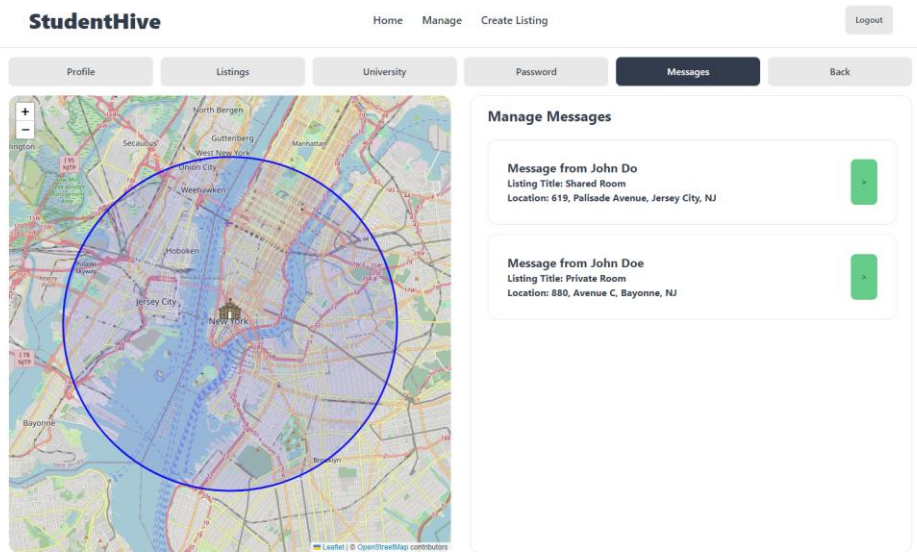

StudentHive
Home
Manage
Create Listing
Logout
Go Back
Copy Sharable Link
Message
Private Room
$2000/Month
Amenities
2 Bedrooms
1 Bathrooms
Permanent Stay
Male
Vegan
Utilities included
Furnished
High-speed internet
Laundry facilities
Lease Agreement
Not Verified
Available
Address
880, Avenue C, Bayonne, NJ
Description
Charming private room with two bedrooms and one bathroom.
Utilities included and furnished for your convenience.

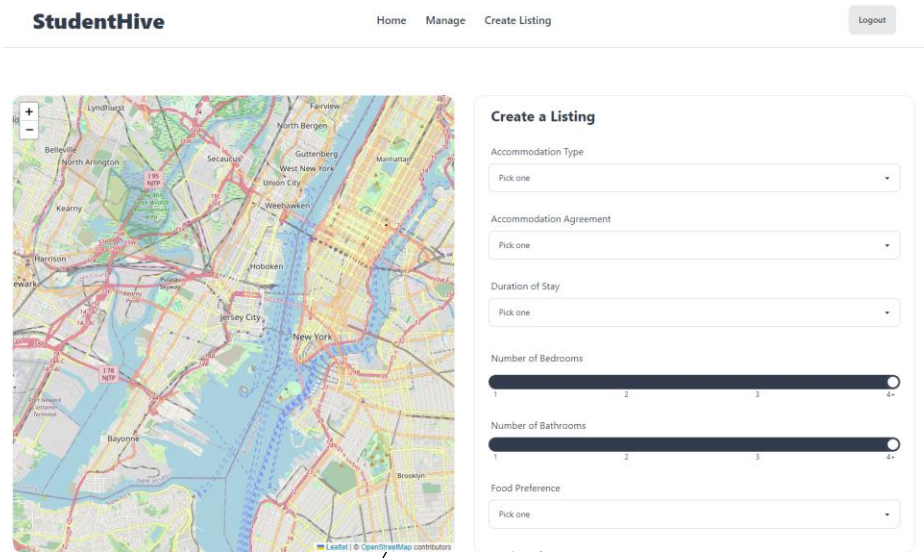

StudentHive
Home
Manage
Create Listing
Logout
Profile
Listings
University
Password
Messages
Back
Manage your Profile
Name
Raj Koushik
Personal Email
rajkoushikv@gmail.com
Educational Email
razzzz@pace.edu
Your University
Pace University
University Preference for Search
Pace University
Update


StudentHive
Home
Manage
Create Listing
Logout
Profile
Listings
University
Password
Messages
Back
Manage your Password
Current Password
Enter Current Password
New Password
Enter New Password
Confirm New Password
Confirm New Password
Update Password

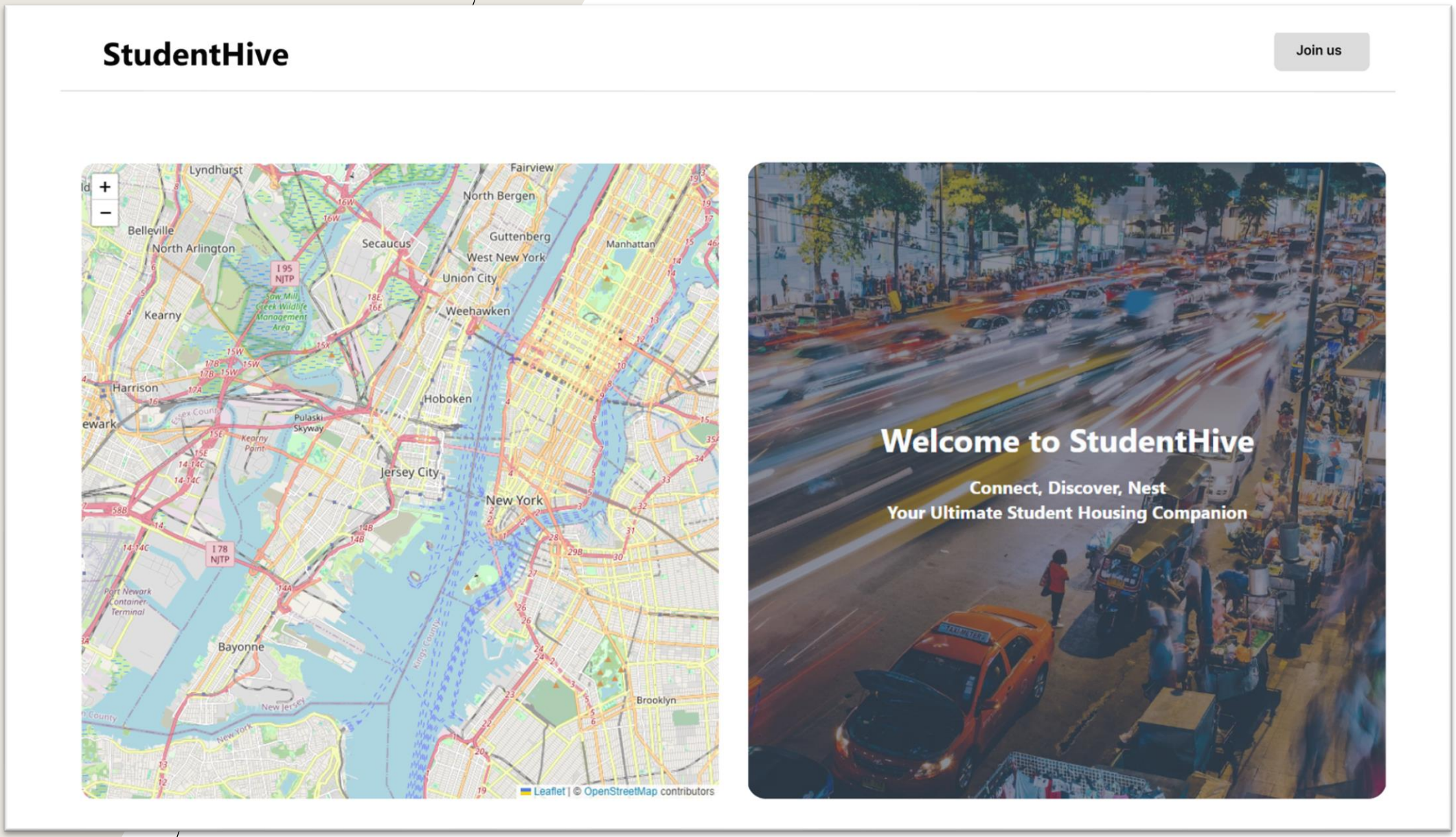

StudentHive
Home
Manage
Create Listing
Logout
Profile
Listings
University
Password
Messages
Back
Manage University for Search Preferences
University Name
Pace University
Pace University
pace.edu
University Coordinates (You can check the map)
[40.7115327, -74.0051639]
Update

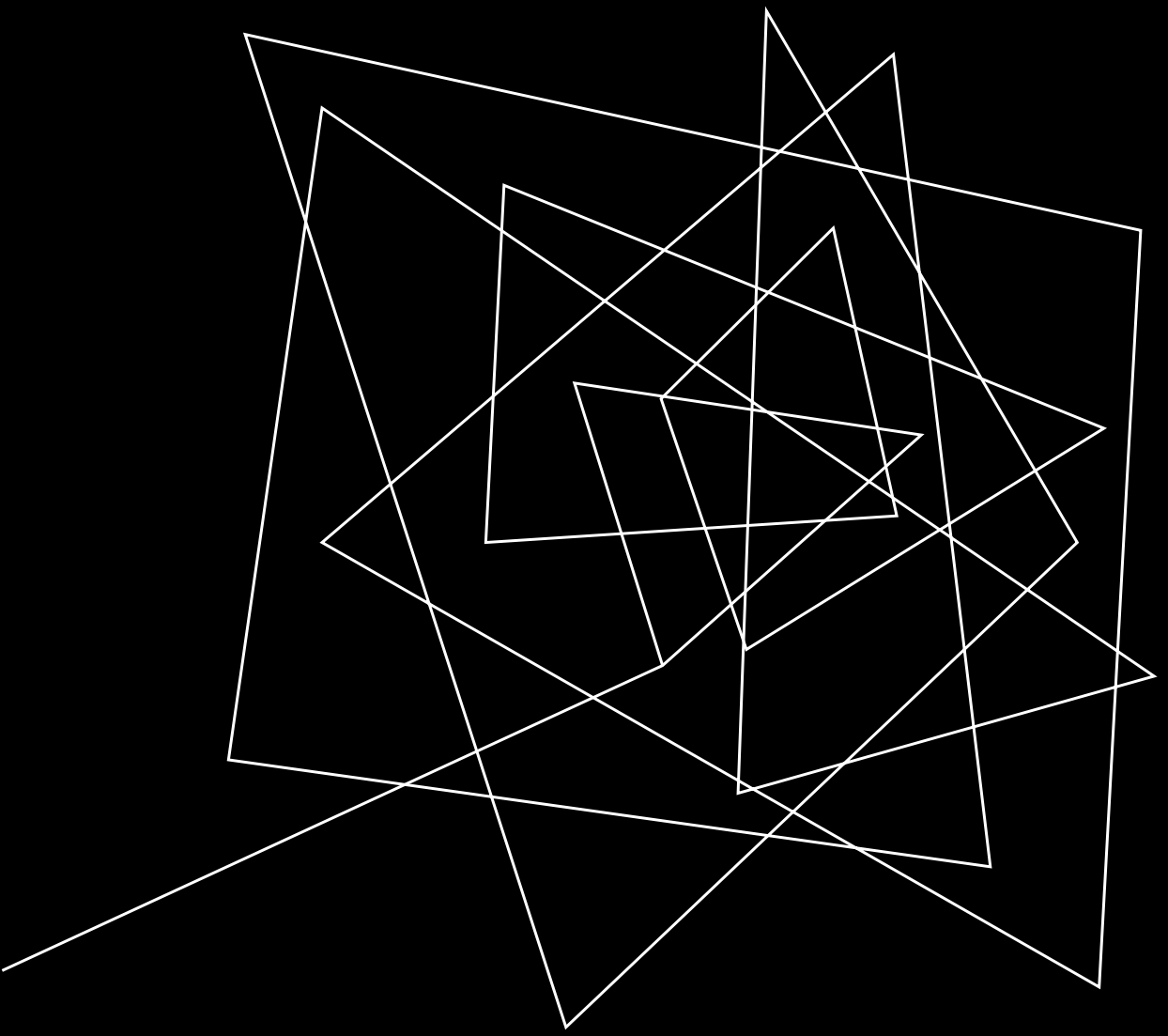

StudentHive
Home
Manage
Create Listing
Logout
Profile
Listings
University
Password
Messages
Back
Manage Listings
Shared Room by 1
619, Palisade Avenue, Jersey City...
$500/Month
Delete
Edit
Private Room by 1
2206, Central Avenue, Union City...
$1000/Month
Delete
Edit
Shared Room by 1
608, Montgomery Street, Jersey ...
$1500/Month
Delete
Edit
Shared Room by 1
559, Garfield Avenue, Jersey City,...
$400/Month
Delete
Edit


StudentHive
Home
Manage
Create Listing
Logout
Profile
Listings
University
Password
Messages
Back
Manage Messages
Message from John Do
Listing Title: Shared Room
Location: 619, Palisade Avenue, Jersey City, NJ
Message from John Doe
Listing Title: Private Room
Location: 880, Avenue C, Bayonne, NJ


StudentHive
Home
Manage
Create Listing
Logout
Create a Listing
Accommodation Type
Pick one
Accommodation Agreement
Pick one
Duration of Stay
Pick one
Number of Bedrooms
Number of Bathrooms
Food Preference
Pick one

LIVE DEMO OF APPLICATION

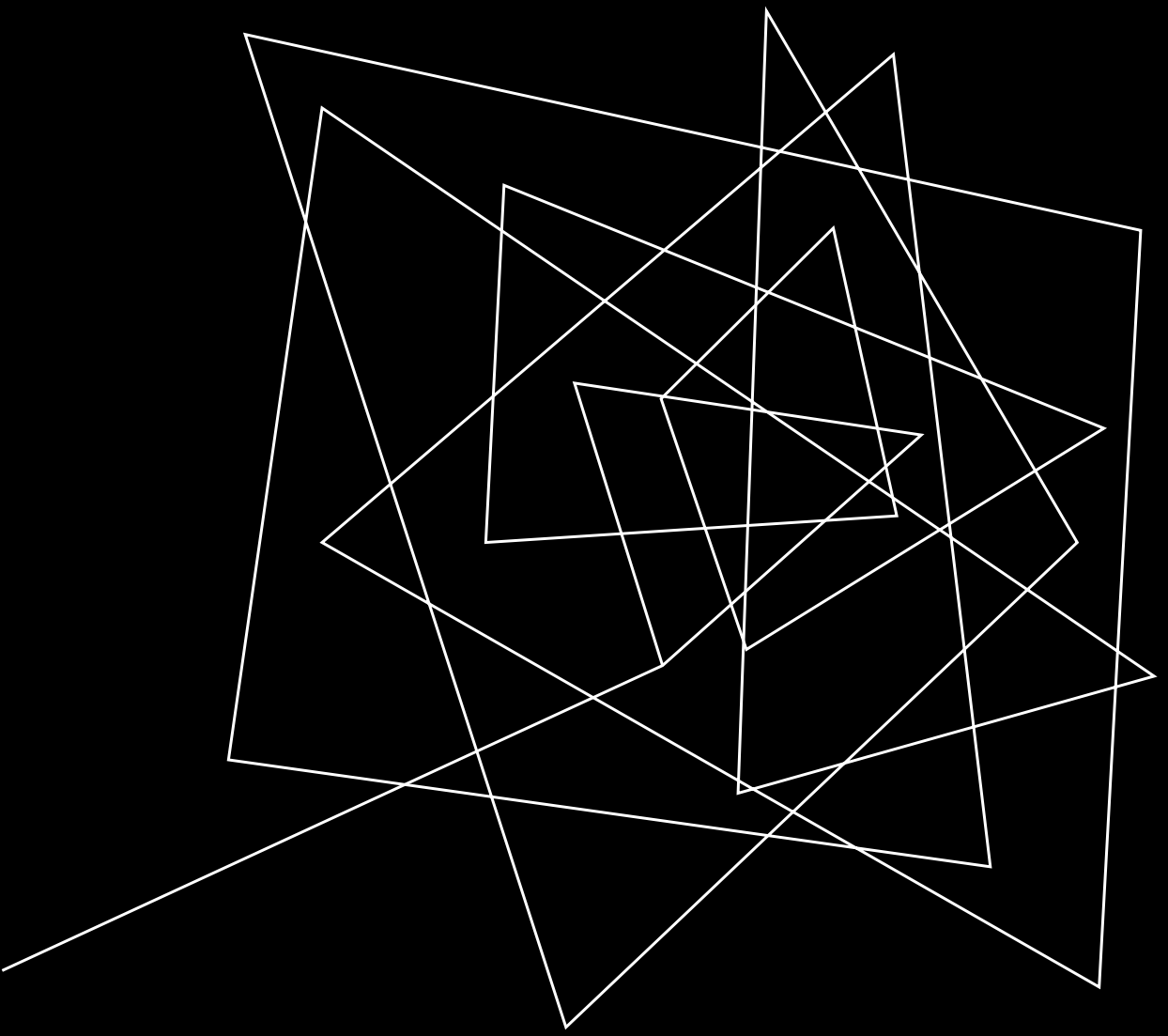




GITHUB LINK

WIKIPAGE LINK

HTTPS://GITHUB.COM/RAJKOUSHIKV/STUDENTHIVE/WIKI/WIKIPAGE



THANK YOU