

ConnActivity

by

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Abstract

ConnActivity is an immersive social media application for people to get connected once again encouragingly and proactively. ConnActivity's purpose is to bring people together both in-person and online. ConnActivity being a web-accessible application gives users an easy way to access from any device. ConnActivity allows users to create their profiles, unique activities, user comments, likes, and posts. ConnActivity facilitates the proactive engagement between people using their activities as the connection.

Introduction

Project Summary:

Connecting with others either in person or online who share similar hobbies is a difficult process. ConnActivity is looking to create an application that will bring real-time events into everyone's hands. ConnActivity is a social media platform that offers easy access to people struggling to find peers with the same hobbies/activities.

ConnActivity looks to create alerts for people who have marked similar interests to join in the activity with them. Users can also set schedules for activities that they know are happening for others to potentially join. The primary objective of this application is to create an easier way to make new friends. Using calendar events or open invitations will give users who are actively looking for more people a more viable option.

Connecting with peers or finding a way to make new friends is more important now than ever. After leaving this period of isolation, finding people online or in person to connect with and expand our social circles is more than possible with ConnActivity.

Problem Statement:

The problem today is connecting with others. Current social media sites harm people's self-esteem and promote anti-social behavior due to the lack of interpersonal collaboration and relationship building. According to the report Psychological impact of social networking sites, "The coming of the Internet has changed the way individuals and gatherings of people associate with each other and the world. Truth be told, a whole era has been raised with the thought that "socializing" incorporates an online part" (Jain et al., 2016). People no longer feel the need to build or struggle to start meaningful relationships with peers. People struggle to find others who share the same interests, not because of the lack of people sharing interests, but because it's difficult to find others with positive and proactive intentions.

Solution:

ConnActivity will provide a platform for those looking to enjoy activities with others. ConnActivity promotes a more proactive approach to socializing with people. Using activities ConnActivity enables users to socialize with others while enjoying something proactive together, whether it be online or in-person. Our platform makes connecting with others who share the same activities easier. Being a calendar-based platform, ConnActivity allows users to coordinate with others based on their activities on the calendar. ConnActivity's primary goal is to connect people in a way that leads to further socialization and enjoyment of recreational activities.

Users will create a profile; their profiles are individually based on activities/ hobbies that each user has. Users will have the ability to receive notifications when liked interests/hobbies are posted to the calendar. These activities can be public, private, friends only. Public events are then sent to shared interest profiles and ask users if they would like to join in or show a notification that the event is happening. Users can then comment and like individual activities to support the post.

This provides the social interaction in an online instance while supporting the actions for in-person activities to be openly available. The implementation of the calendar allows ease of access for users who see activities they have an interest in but are unsure of the availability in their personal lives. The calendar helps with planned events for users to attend or users to create and have others attend, making the activities easier for them to fill. “The percentage of services conducted online, which is a useful measurement of the rising influence of the internet, has increased at an annualized rate of 6.4% over the five years to 2021, as people have increasingly used mobile devices to access social networking sites and other media platforms” (Ibis Industry report).

After the pandemic, people are used to social media creating a way to center around physical or online interactions to promote social well-being allows ConnActivity to stand out amongst the other social media sites. “The results support an argument that SNS(Social Networking Sites) should integrate education and tools to combat procrastination into their design” (Alblwi). ConnActivity’s use of a calendar and alert system will allow users to monitor screen time within the app while encouraging behavior to connect with others outside of it.

Project Source:

We were inspired to create ConnActivity because we found an area of social media that could further allow people to connect and enjoy recreational activities together. The entire team conceived the idea of ConnActivity together. We were thinking of creating a unique social media site that could connect people at a deeper level with their peers where other social media sites have lacked.

The entire team had a hand in the requirements analysis. We all have been working with each other at The University of Cincinnati for the past four years. We had a mutual idea for the final project that we wanted to create and decided that an activities-based social media application was something special.

Discussion

Project Objectives/Goals:

- Develop a fully functional social media website that focuses on activities
- Create a safe and inclusive environment by using private and public shared calendars as well as implementing security and privacy policies
- Implement a calendar in tandem with our website
- Develop an easy to navigate and an attractive website
- Develop a way for users to interact with one another and create friendships through activities
- Develop methods for users to add posts, comments, likes, and other interactions.
- Develop commenting features for users to communicate with each other
- Host the application on Microsoft Azure

Project Scope:

-Our group will create a social media website with calendar implementation to allow our users to schedule and plan their activities with ease.

-Our group will develop a clean and user-friendly website UI, so that our users will have no issues navigating our website to promote ease of use.

-Our group will implement the necessary security and privacy policies for our users.

Quick Project Timeline:

Task #	Task Name	Duration	Start Date	End Date
1-GitHub	Create GitHub Repo	1 day	09/01/2021	09/02/2021
2-Springboot	Initialize a Java Spring Boot project	½ day	09/02/2021	09/02/2021
3-Brainstorming	Meet up for coding and brainstorming	7 days	09/06/2021	09/13/2021
4-Database Management	Setup PostgreSQL Database	3 days	09/14/2021	09/17/2021
5-Pair Coding	Implement java code	3-6 months	09/20/2021	03/17/2022
6-Security Implementations	Implement Security measures	3-6 months	09/20/2021	03/17/2022

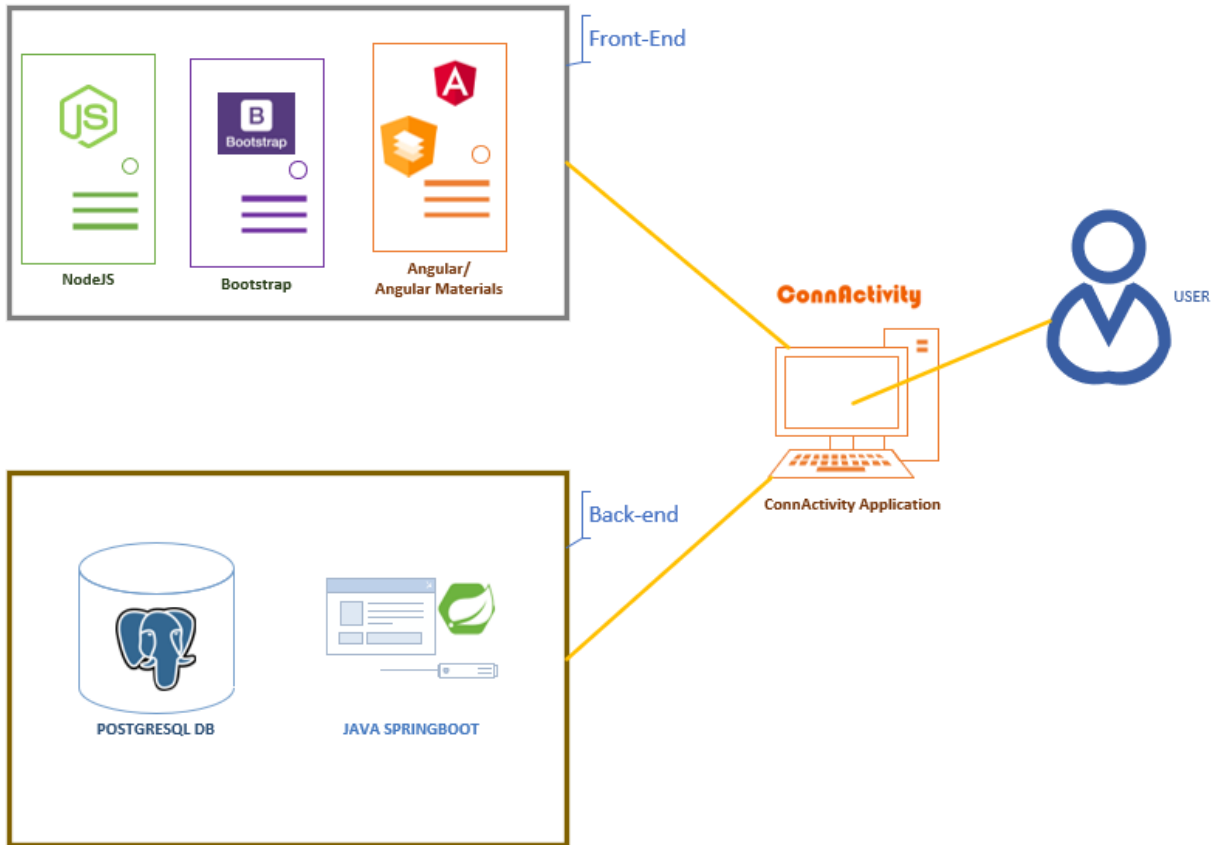
7-Testing	Unit Testing	3-6 months	09/20/2021	03/17/2022

Technologies Used:

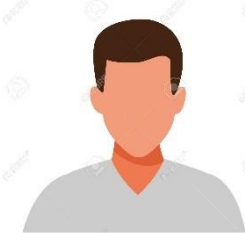
- PostgreSQL DB
- Java Spring boot
- Angular
- Angular Materials
- Bootstrap
- NodeJS

Technical Architecture Diagram:

Below is the technical architecture diagram for our ConnActivity application. This diagram displays the systems used in our application. We have separated the systems into front-end and back-end sections. Currently in the back-end, we utilize a PostgreSQL database to store user information and application data. The application is programmed in Java Spring boot, a Java framework that suits our requirements. In the front-end, we use NodeJS to host our web application on our machines locally. We built our web application in Angular a web framework, while using Angular Materials and Bootstrap to build our desired UI.



User Personas:

User Persona1: The College Student	
 <p>Picture:</p>	Title: Captain of the lacrosse team
	Name: Michael Chase
	Age: 21
	Gender: Male
<p>Behavior:</p> <ul style="list-style-type: none"> • Michael likes to bring together the team by organizing the practices so that each member receives a specific invite. • Michael also likes to join in pick-up basketball games and have his friends join or with most pick-up games get some random people to come in and join in as well. • Michael is always looking for ways to get to know people and organize outside events on the fly. • Michael also is looking for new people to play sports with and new find ways to have everyone involved who wants to be involved 	

Personality/use for app:

- Extrovert
- Outgoing
- Natural Leader
- Athlete
- Kindhearted

Needs & goals: Needs to connect with others, develop more friendships, provide a way to include more people in the community,
 Michaels goals are to better organize events with his team and with people who share a passion for sports

User Persona: The Lone Gamer**Picture:****Title:** Apex legends ranked player**Name:** Jessica Williams**Age:** 19**Gender:** Female**Behavior:**


- Jessica is a nice girl but enjoys staying indoors more often than going outside.
- A lot of the time Jessica spends her time playing video games by herself. Sometimes none of her friends are online at the same time as her and she must play games alone.
- Jessica enjoys meeting new friends online but finds it hard to schedule time to play with others at the same time.
- Jessica is always looking for ways to connect with new or old friends to play online games with.

Personality/Use for app:

- Introvert
- Spending most time alone
- Genuine
- Kind
- Social over video games
- Always looking for groups to play with
- Does not have many gamers friends

Needs & goals: Needs to connect with more people during the time she spends online playing games, needs to find ways to organize play times together, needs to set up open groups for others with similar interest to join in.

User Persona: The Activist

	Title: Activity director for multiple groups
	Name: James Franklin
	Age: 27
	Gender: Male
Picture:	
Behavior:	<ul style="list-style-type: none"> • James is an activity organizer • James creates events for college students to attend and bring awareness too • James is an energetic guy who tries to bring attention to many activities • James is a guy who wants to connect old and new friends alike, trying to generate ways to bring attention to people’s hobbies and make it known that things do not have to be done alone
Personality/Use for app:	<ul style="list-style-type: none"> • Outgoing • Natural Leader • Organizer looking for ways to spread awareness of activities • Athletic • Organized
Needs & Goals:	Needs to connect with more people during the time he spends online playing games, needs to find ways to organize play times together, needs to set up open groups for other with similar interest to join in.

Use Cases:

Use Case ID	UC_001
Use Case Name	Create a new activity
End Objective	The ability to create a new Activity
User/Actor	Jessica Williams
Trigger	The user selects an option to create a new activity
Frequency of Use	Daily
Preconditions	The user is creating an activity for the future
Basic Flow	1- System prompts user to create a name for activity. 2- System prompts user to create a date for activity 3- System prompts user to create a location for activity

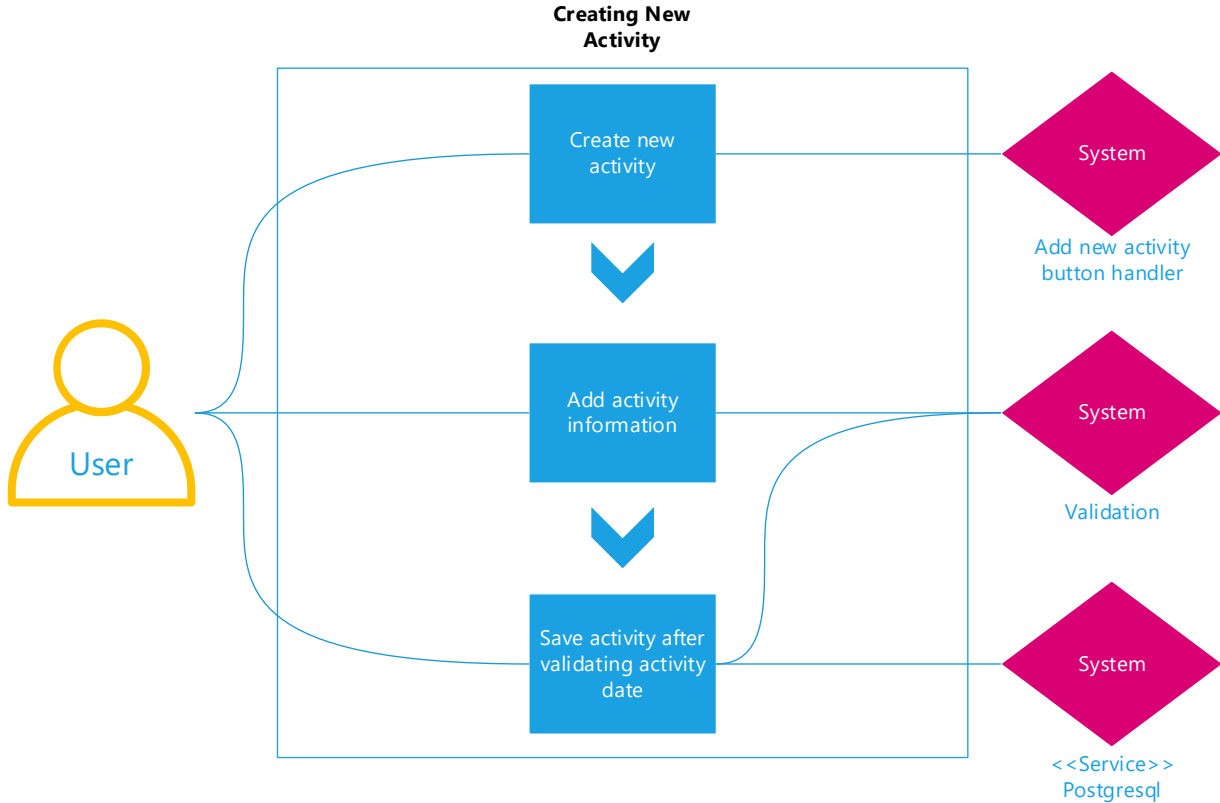
Alternate Flow	1- System discovers that the date of the activity is in the past. 2- System prompts the user to put in another date in the future. 3- System checks the date again and confirms with user.
Postconditions	The Activity saved to be visible to the user when viewing activities

Use Case ID	UC_002
Use Case Name	Creating new post
End Objective	User created post
User/Actor	Jessica Williams
Trigger	The user selects an option to create a new post
Frequency of Use	Daily
Preconditions	User is logged in and is in posts section
Basic Flow	1- User navigates to posts section 2- Create new post 3- User adds new post content 4- User clicks add post
Alternate Flow	1- User navigates to posts section 2- Create new post 3- User clicks add post 3- System prompts user to enter post content 4- User adds content 5- User clicks add post
Postconditions	User can access posts section

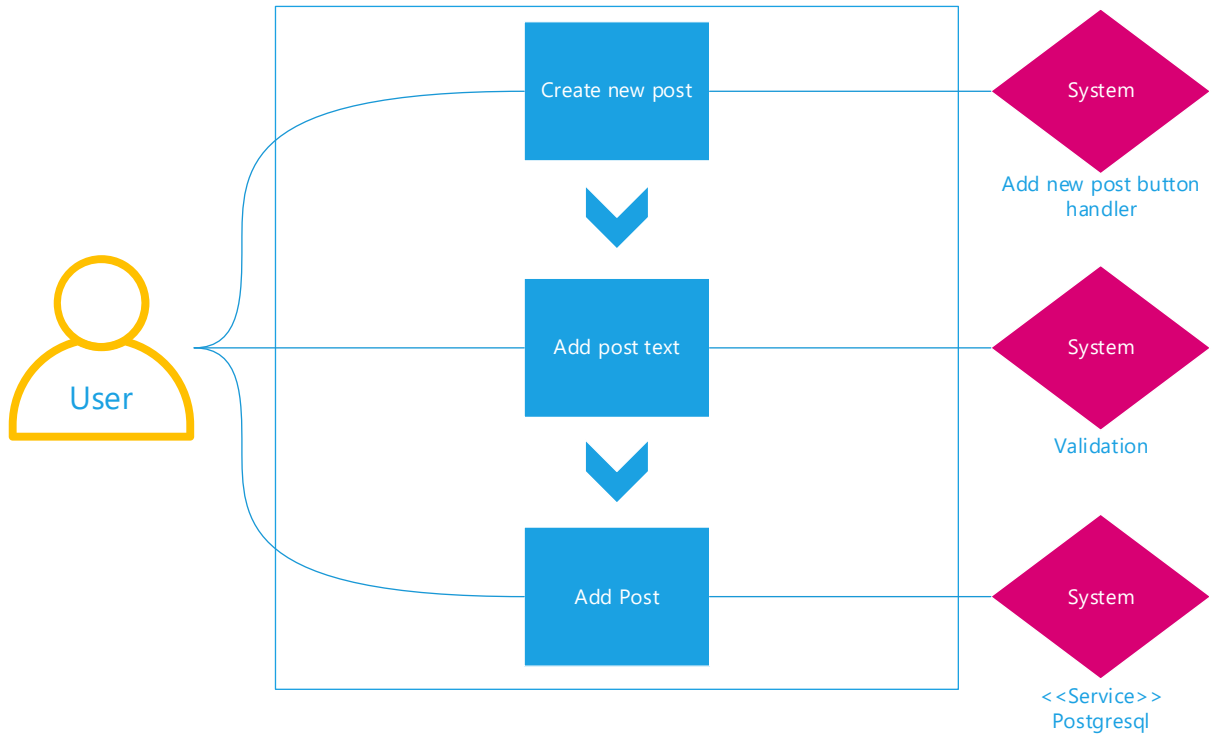
Use Case ID	UC_003
Use Case Name	Creating new comment
End Objective	User creating new comment
User/Actor	James Frank
Trigger	User adds content to comment
Frequency of Use	Daily
Preconditions	User is logged in
Basic Flow	1- User is in activities section 2- User adds text content to comment on activity 3- User adds comment to activity
Alternate Flow	1- User is in posts section 2- User adds text content to comment on post 3- User adds comment to post
Postconditions	User can see previous comments on posts and/or activities

Use Case ID	UC_004
Use Case Name	Send friend request
End Objective	User sending a friend request to another user
User/Actor	Michael Chase
Trigger	User sends a friend request to a selected user
Frequency of Use	Daily
Preconditions	User selects sends a request to a user that exists
Basic Flow	1- User selects the profile of the desired friend 2- User sends a friend request 3- Receiving user can either accept or deny friend request
Alternate Flow	1- User selects profile of the desired friend 2- System notifies user that the desired friend doesn't currently exist 3- User finds correct profile and sends friend request
Postconditions	User can see friends on their friends list

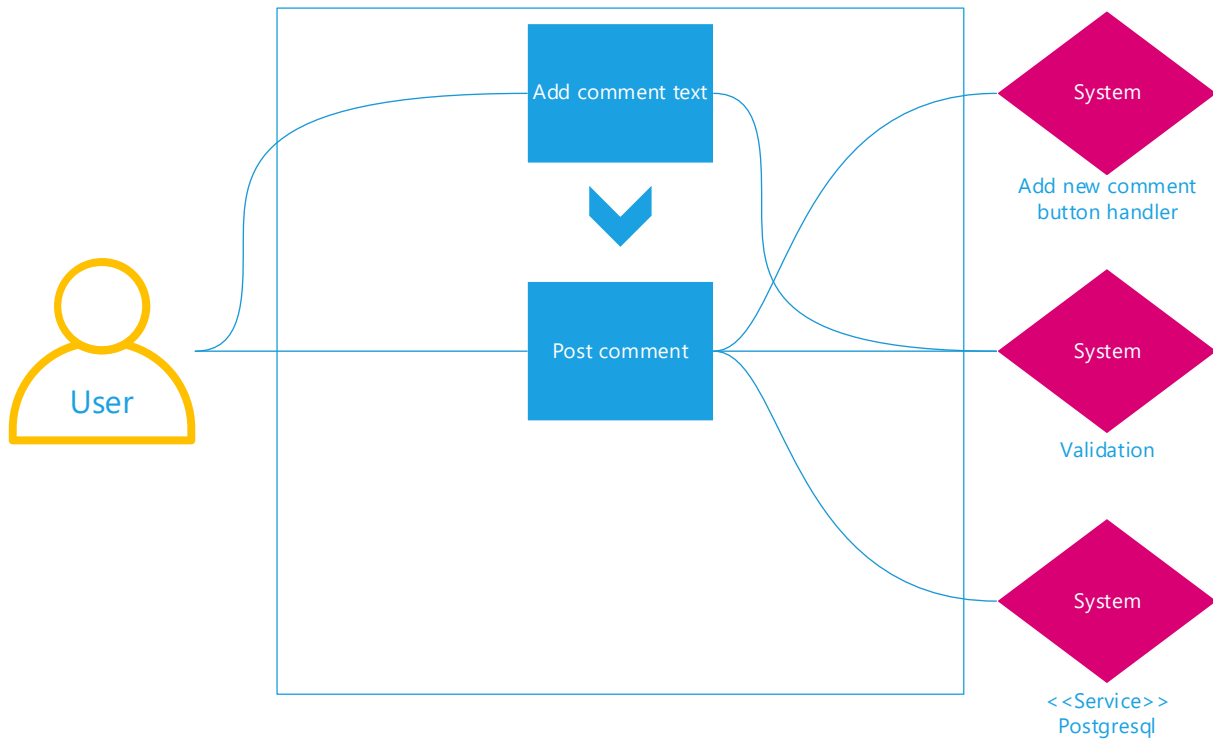
Use Case Diagrams:

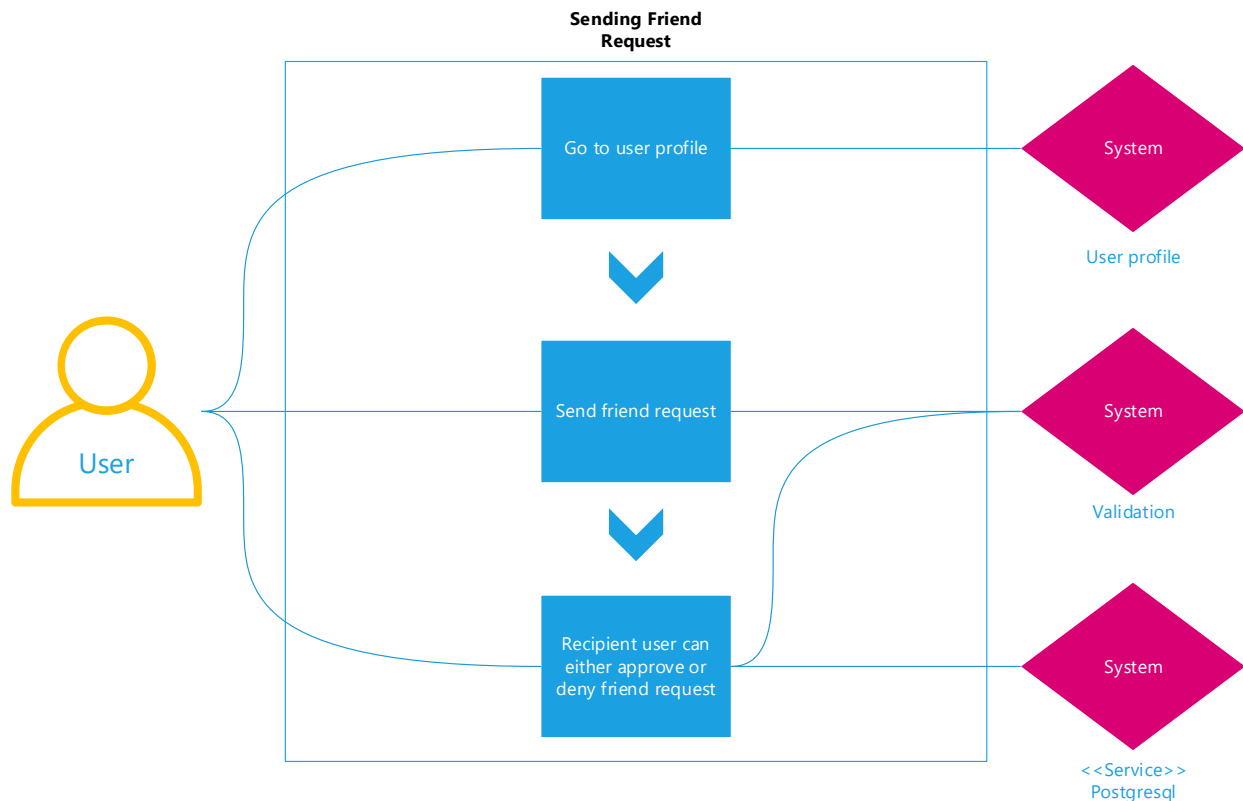


Creating New Post



Adding New Comment





Testing Plan:

Overview

For ConnActivity, we simply couldn't decide on one type of testing that would fit our application for its vast majority of different technologies implemented. There are many different types of tests included in our plan, each type of test corresponds with a different part of ConnActivity. However, you'll mostly find our main methods of testing are Unit Tests and Integration Tests.

Methodology

As mentioned above, we mostly test our code with Unit and Integration tests because there are multiple people contributing to this project. Every sprint, each one of us is tasked with developing different features and components. In development, we use Unit Testing to test individual features, units and components. By the end of each sprint, we meet to integrate all of our different features and components and then run Integration Tests to make sure that our integrated features and components as a group flow logically. We also plan to use System Testing and Release Testing when we have a product that we are comfortable with.

Scope

The scope of this Test Plan is to develop a test to access all functionalities of the Activity component. This is the first component integrated into our application.

- Ability for a user to create a new activity

- Ability for a user to edit an existing activity
- Ability for a user to delete an existing activity
- Ability for a user to list all existing activities
- Ability for a user to add, update and delete their comments
- Ability for a user to add, update and delete their posts
- Ability for a user to send friends requests
- Ability for a user to accept or deny friend requests

Objectives

The objectives are to verify that the application:

- Meets the defined requirements
- Performs and functions properly
- Correct error handling
- Bugs/issues are identified and fixed before production
- Ensure the application passes all different kinds of tests

Test Logs and Procedures

Test Case #	User	Role	Expected Output	Actual Output	Pass/Fail	Reason	Date
CreateActivity-1	Jessica Williams	End-user	Activity created successfully	Activity Created Successfully	Pass	No invalid input	10/24/2021
UpdateActivity-1	Jessica Williams	End-user	Activity updated successfully	Activity Updated Successfully	Pass	No invalid input	10/24/2021
DeleteActivity-1	Jessica Williams	End-user	Activity deleted successfully	Activity deleted successfully	Pass	User clicked delete button	10/24/2021
CreatePost-1	James Frank	End-user	Creation of new post	New post was added	Pass	No invalid input	01/28/22
UpdatePost-1	James Frank	End-user	Updating post with new content	Post was updated with new content	Pass	No invalid input	01/28/22
DeletePost-1	James Frank	End-user	Deletion of Post	Post deleted successfully	Pass	User clicked delete button	01/28/22
AddComment-1	Michael Chase	End-user	Adding new comment	Comment added successfully	Pass	No invalid input	01/28/22
UpdateComment-1	Michael Chase	End-user	Updating selected comment	Comment updated successfully	Pass	No invalid input	01/28/22
DeleteComment-1	Michael Chase	End-user	Deletion of selected comment	Comment deleted successfully	Pass	User clicked delete button	01/28/22
SendFriendRequest-1	Michael Chase	End-user	Friend request sent to selected user	Selected user did not exist	Fail	The request was sent to a non-existing user	01/28/22
SendFriendRequest-2	Jessica Williams	End-user	Friend request sent to selected user	User sent friend request to selected user	Pass	The requested user existed	01/28/22
Accept Friend Request-1	James Frank	End-user	Chose to accept user friend request	User was added to friends list	Pass	User clicked accept	01/28/22
Deny Friend Request-1	Jessica Williams	End-user	Chose to deny user friend request	User was not added to friends list	Pass	User selected deny	01/28/22

Testing Review

Testing is intrinsic to the proper development of any project. Thorough testing of our project is necessary due to the constant user interaction with ConnActivity. We have had bugs and errors throughout the entire process of developing this application. At this current stage in our application development, we are aware of most of the bugs and errors that have or could occur in the future. Our awareness of these current and future bugs/errors have given us ample opportunity to learn from and implement necessary testing scenarios. The only part of this

project that has gone through constant rework and retooling is the design and flow of the front-end of our application. In the coming weeks, we will be implementing and testing a critical part of our project, the calendar.

User Acceptance Testing is critical in the testing process. Currently, our application is run locally on our machines so our user testing will be done by each team member. Soon, we will attain outside users to test our application, to properly conduct UAT.

Change Management Plan:

Each team member can request a change. If a team member were to be blocked or unable to complete a task due to an issue of any kind, that team member could request a change.

We will analyze the change requested to see what other systems that change might affect. As a team we will go through the reasons for the change and move forward with a unified team decision. Then as a team we will decide the level of criticality of each change requested. If an issue arises where the entire team cannot move forward with their tasks, then we will move that change to the highest level of criticality.

We will communicate our changes with our stakeholders via Microsoft Teams or Email.

Budget:

On our current budget, our only expense is the Labor – IT. We have not purchased any software, hardware or external labor. We chose 20\$ as our Rate Per/Hr. because of our experience level with the technologies and personal experience. We do not have any current budgeting plans to purchase any software, hardware or external labor.

Project Name:	ConnActivity	Project Manager:	Imad Badawi	Team #	6
Project Members:	Imad Badawi, Christian Carter, Daniel McGhee	Project Areas:	Github	Project Advisor:	Dyllon Dekok
Problem Statement					
The problem today is connecting properly. Today's social media sites harm people's self-worth and promote anti-social behavior due to the lack of in-person collaboration. People no longer feel the need to have the same or similar social interactions in person. It defeats the purpose of "socializing" if it is all through a screen. People struggle to find others who share the same activities, not because of the lack of people sharing interest in activities, but because it's very difficult to find others who share the same schedule.					
Project Description					
ConnActivity is a calendar-based web app that allows people to share what their hobbies/activities are, and when and where those activities are going to take place. That will make it easier for people to look for others who share the same hobbies according to their calendar. This makes it easier to coordinate with friends or strangers based on common interests. Allowing physical and social interactions to increase through the use of shared calendars.					
Project Asset Type					
Revenue Generating	Comments: ConnActivity is a brand new product.				

Risk Identification (See Risk Types tab)					Project Stakeholder(s)	
	Risk Rating* 1-5 (5 is high)	Comments	Weight	Score		
Work Effort (days)	5	Creating a new Social Media from scratch with a team who is new to developing an app from the ground up.	40%	2.00	Imad Badawi, Christian Carter, Daniel McGhee.	
Complexity	3	The complexity of delivering the correct info to the correct locations as well as integrating the different ideas we have for this application makes it a 3 Complexity Risk Rating.	60%	1.80		
Project Risk Score:				3.80		
Estimate of Benefits						
If project will generate revenue, estimate 1 year here:						
Select other benefits the project may bring a customer or user:						
Risk Avoidance	<input checked="" type="checkbox"/>					
Improved customer satisfaction	<input checked="" type="checkbox"/>					
Increased system availability	<input checked="" type="checkbox"/>					
Productivity or process improvement	<input checked="" type="checkbox"/>					
Reduced costs	<input checked="" type="checkbox"/>					

Estimated Cost Rough Order of Magnitude:						
	Rate Per/Hr	Work Effort (Hours)	1 X Costs	Ongoing Annual		1 X Support Cost
				Rate Per/Hr	Work Effort (Hours)	
Labor - IT	20	572	\$ 11,440.00	20	11	\$ 220.00
Labor - External			\$ -		0	\$ -
Software - External						
Hardware - External						
Misc.						
TOTAL			\$ 11,440.00			\$ 220.00
5-Year ROI Analysis						
Description	5- Year Expected		Conservative (1.5)			
Total Costs	\$	12,540.00	\$18,810.00			
Total Benefit	\$	-	\$0			
Total Costs/Benefit Differential	\$	(12,540.00)				
Conservative Costs/Benefit Differential	\$	(18,810.00)				

Comments: Our team's goal is to at least work on the project 2-4 hours daily. We have three members in our team and we work 2-4 hours/day, 6 days a week developing.

Problems Encountered and Analysis of Problems Solved:

We encountered many different problems during this project's development.

- Development of user sessions
- Hosting docker containers in Azure
- Developing a stylish website
- Project management and scheduling
- Project scope management
- Connecting the front-end and back-end to communicate with each other

- Implementing security

Some of the problems encountered during the development of this project are still in progress in resolution. The creation of a stylish website was completed with the use of Angular Materials and Bootstrap. The ease of use with Angular Materials and Bootstrap makes website design straightforward. The project management and scheduling problem were resolved with the use of Microsoft Teams, email, text, and in-person communication with team members. The scope of the project was heavily debated among team members, whether we wanted our application to be exclusive to the University of Cincinnati or the entire U.S population. We decided to allow our application to be accessed by the masses, with no exclusivity to any one group or population. Connecting the front-end and back-end was a complex problem that couldn't be completed in just a matter of hours. The connection between both ends of code was resolved over an entire week of research and implementation and was finished by the end of the week. Though all the problems listed have yet to be resolved, we are working hard towards the removal of all bugs and errors we encounter.

Conclusion

In conclusion, ConnActivity has taught us that there are a plethora of difficulties in developing an application from scratch. Turning ideas into thousands of lines of code, the struggle of managing different microservices to help the frontend, backend, and database communicate with one another was incredibly challenging. Applying proper project management practices has helped the team tremendously in managing this large-scale project. All team members work on different facets of ConnActivity but work towards achieving the same end goal, a fully developed social media platform. Our abilities in communication and planning have improved, as well as our programming skills. Our schedule and work hours are dynamic, with some dedicated work time each week. The daily standup meetings and the retrospective meetings after each sprint will still be ongoing. The hours dedicated to developing the application gradually increased with new feature implementation, unit testing, and front-end design finalizations. The entire process of project development has been such a valuable learning experience for each team member.

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