

# Development

# Winter Assignment

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# Infinity Stones

**LAST DATE OF SUBMISSION:** Mar 12, 2023

## Overview

Here are a few basic ideas to get you started. Feel free to build upon these as you see fit. To submit your work, simply fill out the submission form provided on our website. You may choose any number of tasks from the list, but keep in mind that both the quality and quantity of your work will be taken into consideration for a chance to directly appear for our recruitment interviews.



## Project Ideas

### Shopping Manager

As a Marvel fan, shopping for merchandise can become overwhelming and disorganized, with items scattered across different shopping platforms. Keeping track of desired inventory becomes challenging, leading to missed opportunities and repeated purchases. Users often have multiple wishlists on various platforms, making it difficult to remember what they want to buy and from where.

What if you could have all your shopping carts in one place? The idea behind a shopping manager is to build a web application where you can manage all the items you wish to purchase. You can add the links for the individual items to the app and then view them in one place.


Just like Iron Man upgrades his suits, you can upgrade your application and earn extra points by adding additional features, such as notifications on price changes or availability, and commenting on or prioritizing the items.

**Hint:** As presented in the workshops, you can scrape the details of the items added using Selenium or any similar technology.

### Game Development

Get ready to take down your enemies with Hawkeye! In this fast-paced and action-packed game, players will assume the role of Clint Barton as they navigate through a series of obstacles and challenges inspired by the world of Hawkeye.

Your task is to create a fast-paced action game of an arcade shooter where players can upgrade their weapons, collect power-ups, and battle against various enemies, all while utilizing Hawkeye's expert marksmanship. With a focus on accessibility and replayability, this game will surely be a hit for players of all levels. So suit up and join Hawkeye on a journey like no other!



Unleash your imagination and bring your game ideas to life by using any game engine of your choice. You can build your game for mobile, PC or the web with unique themes, levels and stories.

## Mobile Development

Tony Stark is working on a new technology but is stuck on finding the best approach to development. To get help, he open-sourced the GitHub repository. He needs to describe the project, but Thanos has snapped the GitHub markdown editor out of existence. Now it's your task to help him by creating one!

He needs some requirements for his mobile app, which are as follows:

- a. The user shall be able to log in and signup for the app with an email and password.
- b. There will be an editor where the user will write the markdown. You have to write your own markdown parser, **usage of packages is forbidden**.
- c. The markdown must support headings, styling text, links, network images, and lists. [See [GitHub Flavored Markdown \(GFM\)](#) for more]
- d. The user can preview the written markdown on the preview screen.
- e. A screen where the user can view and edit his profile details (including profile picture).
- f. Implement dark mode in the app.

## Brownie Points

- a. Add support for a language of your choice for app text (other than English).
- b. Greater the number of features you implement from GFM, the more brownie points you earn!
- c. A beautiful and not an obsolete UI :)

## Socket Programming

With Falcon as the new Cap, he realizes his sockets are crooked, and he needs to communicate with his partner, the Winter Soldier, over his transport layers using a TCP or a UDP channel. But he believes in “assembling” everyone and wants to implement a dynamic TCP/UDP Chat Server for the same.

He needs some requirements, which are as follows:

- a. A Multi-Threaded Chat System which allows connected users to communicate through messages.
- b. Chat Rooms: Falcon needs to communicate in bulk efficiently, so he must have channels through which many people can communicate, similar to WhatsApp groups.

Brownie Points:

- a. Add file/image sharing feature to your TCP/UDP Chat server.
- b. For 2y: Brownie points if you can build it over a TLS Channel.

Tech Stack:

No specific requirements, but it would be easy to build using C++ or Python as the programming language.

Resources:

If you are new to computer networking, here are a few resources to harness the power of networking that Falcon needs as a Cap.

- a. [Beej's](#) guide to socket programming.
- b. [Oracle](#) Documentation on pthreads. For using [pthreads](#), you can set up any Linux distro into a [virtual machine](#), or use [WSL2](#).

## Blockchain Development (dApp)

Wanda couldn't hold her control over Westview, as it was all centralized as the 'Hex' and allowed witches like Agatha Harkness to cast her malicious magic. Wanda now wants a decentralized marketplace to secure the ownership of her newly learned magic into something non-fungible and invaluable.



Your goal is to create an NFT Marketplace which has the following:

- a. User Registration and Login.
- b. A Dashboard where users can see NFTs along with their owners.
- c. A feature to buy and sell NFTs.

The primary focus would be the implementation of NFTs as smart contracts over a blockchain (preferably Ethereum, but you are free to choose any blockchain).

Brownie points:

- a. Group ownership of an NFT: This would require you to authenticate well on the smart contract when you have multiple owners for a given NFT.
- b. Extending the marketplace to exchange NFTs with other NFTs.

### Remaining Infinity Stones?

These tasks are just indicative and you are in no way restricted to work only on these. Feel free to work on anything of your choice and send in your best submissions when the deadline approaches.

## Still, have a Question? Ask Us!

We at IMG are here to help throughout your development from a learner to a web developer. Just ping us at any point if you are stuck; we surely like to stick to the motto, “Help will always be provided to those who ask for it.”

**Remark:** Please post your queries on the [discord server](#). We would be delighted to see your progress. Even if you don't reach the end, what's most important is that you learned something new. That's all that matters to us. We're always looking for talented developers and designers who have a constant desire to learn and grow. So, please submit your code to us via a GitHub link for a public repository. If your hard work is reflected in your code, you may even get a chance to directly appear for recruitment interviews.



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## All the best!

Stay tuned, as we will soon release the submission form on our recruitment site and social media pages. Keep following us for updates.

