

# DroidRush 2019

## Problem Statements

(Btech 2nd and 3rd year, MCA 1st and 2nd year)

*“Avengers Assemble”*



## Rules and Regulations

Before you start developing awesome android apps, have a look at the rules and regulations so that you don't end up with disqualification.

1. This is a team event of maximum 3 members. You can still work individually if you want. Team members can be from any branch. The only prerequisite is that at-least one member of the team should be from CS/IT branch. In case you are unable to find team-mates, contact final year seniors.

2. You have to build a working Android app for any one problem before the deadline(will be shared). Contact seniors for any discrepancies/doubts in problem statement.

3. You'll be required to submit an abstract before submitting solution, in which you will describe the approach to the problem and any external libraries used. The last date for abstract submission will be communicated later.

4. The decision of the judges will be final and binding.

5. This is a cumulative scores event. So you need to perform well in all rounds to win. Information regarding various rounds will be communicated later.

6. NO FORM OF CODE PLAGIARISM WILL BE TOLERATED

If any part of the project is found copied, the team will be disqualified from DroidRush. Take it seriously.

7. Overuse of APIs is not encouraged. It might result in loss of marks. Use APIs where necessary.

8. For any problems, queries, questions, or help at any stage, post it on Android MNNIT fb page or contact seniors.

## Some Tips

1. The Problems are divided into categories based on the developer's experience in android development. The difficulty level doesn't mean that a person choosing a difficult problem will always be ahead of the person choosing an easy problem. However, choosing a difficult topic will give you an edge, provided you are able to achieve what is being asked. So choose wisely!
2. Focus on making the application user friendly. Backend is important, but so is the User Interface.
3. The main motive of Droidrush 2019 is to help you to develop interest in android development and at the same time give you an opportunity to develop an awesome project. So don't think you cannot do it!
4. The Basic/Advanced features are to guide you on your topic. You are free to add more features from your side which would enhance the quality of the app. You would be judged on your creativity, functionality of your app, User Interface, user-friendliness etc.
5. Note for first-time developers/beginners :  
Your focus should be to complete the project in the given time. The problems added in the initial section of this document have been provided with some hints to give you direction and get you started. Just stay dedicated.  
And for those attempting intermediate and advanced problems,  
**May the best app win !!**  
**All the best!!**

# Shopper's Stock (easy)

## Problem Statement:

During the events of end game, Loki teleported himself away using the power of tesseract. Where did Loki go ? Actually, he went to planet number C-39 and opened a general store there. But his math skills are not that good, and he is having hard time managing the store. Help him so that he may remain on planet C-39 and never come back to earth.

## Basic Features:

1. User can add, edit, delete items present in its shop. Items may have attributes like number of items, their cost, short description, etc.
2. App keeps track of products sold and the corresponding profit generated. Total profit and sale is calculated.
3. Store information of dealer of item from whom the user initially bought the items.

## Advanced Features:

1. App shows the top items with respect to different parameters like number of items sold, total profit from that item, etc.
2. Whenever a new demand of an item occurs, add this item in a separate list.
3. Whenever a stock reaches its depletion, vibration should occur and item should get deleted from stock.

Hint : use local file storage, no need to create an account.

# Captain's diary (easy)

## Problem Statement:

Captain America went back in time and lived his life as it was supposed to be. Now being old, he wants to maintain notes of every day chores as he is too old to remember stuff. You can help him by developing a notepad application (You are a fan, don't deny!).

## Basic Features:

1. User can add folders with different titles and add notes in each folder.
2. User is able to add, edit, save and delete his everyday notes. Notes are saved with information like title, creation date, last edit date, etc.
3. Provide features like font size, font colors, etc.

## Advanced Features:

1. Implement search feature. You can implement a title based search or attach tags/topics with notes and implement a tag based search or implement a generalised search through all the notes.
2. User can share notes on different platforms.
3. User can add password on specific folders.

Hint: Use customised list view, firebase/sqlite for storage.

# Andi-Test (easy/intermediate)

## Problem Statement:

Our very own antman saved the world with his idea of the time machine. Now back with his family, he has bought an android phone as a present for his daughter. He wants to check the performance of the android device by performing tests of various difficulties and generates a report of the test. Since he is an electrical engineer with zero experience in coding, he asks for your help. Develop an application which performs performance tests and based on these tests a user can compare its phone with other devices being tested earlier .

## Basic Features:

1. Test should be of various difficulties (eg. Easy Test, Stress Test ) .
2. Maintain a score for each test performed based on their difficulties.
3. Maintain a test report which must include hardware conditions during the test with interactive UI.
4. App should provide user with all software and hardware specifications of the device in a list.

## Advanced Features:

1. Maintain a history of some recent tests performed on the device with summarized and detailed information.
2. Maintain a leaderboard of scores gained in every category of test with other devices using the app.
3. App sharing and feedback mechanism.

Hint : 1. Use firebase/sqlite for storage of test records.  
2. Search for inbuilt android classes that provide android usage and build properties.

# Track my Apps (easy/intermediate)

## Problem Statement :

After the guardians leave earth for the far ends of the universe, Groot's addiction for smartphone has annoyed everyone including Rocket. Rocket may be an excellent engineer, but he is not good with apps stuff. Help rocket by developing an android application that keeps track of groot's smartphone addiction and warns him against excessive usage.

## Basic Features :

1. App should show time of usage of other apps like facebook, twitter, gmail and whatsapp. ( Its implementation specific whether one would allow user to choose which apps to track or it may show top 5 or 10 used apps)
2. User can create an account where his apps usage data will be stored on daily, weekly or monthly bases.
3. User should be able to set threshold time limit for apps he/she is addicted to and in turn, app should notify or alarm the user once that threshold is crossed.
4. Bonus points for interactive UI.

## Advanced Features :

1. App should show relative usage of other users in form of figures or statistics. You can also prepare some kind of leaderboard or reward point system which adds to one's motivation.
2. App should also function as app blocker to block apps after a sudden threshold is crossed for the current day.

# Locale-lite (intermediate)

## Problem Statement:

Nick Fury, now operating in shadows, has a job that requires acute knowledge of nearby surroundings. He wants an app that gives him details of local utilities as well as contact details of people who are providing these utilities. Maria Hill, an excellent android developer and Nick Fury's teammate, has gone on a mission to help Skrulls. You have to help Fury by developing an app so that Fury can 'see' through his surroundings.

## Basic Features :

1. User can sign up and create an account and add their details.
2. User can search for specific utilities in his local area like carpenter, electrician, plumber, etc.
3. User can register both as a customer or as a utility provider.
4. User can mark his/her location on map.
5. User can negotiate either directly or chat with provider in a chat room.
6. User can make online transactions to the providers by redirecting them to payment apps.

## Advanced Features :

1. Admin interface should be there to verify users who are registering on the app as providers.
2. User can send reviews about the services of provider. There should be a rating system for all the providers (it is implementation specific as to what kind of rating/reviewing system you want)
3. User can see previous contact history in the form of a list and contact them again from there.



# Attendance Management System

(intermediate/advanced)

## Problem Statement:

1 possibility in 14 million! - Mystic arts is the talk of the day after Dr. Strange helped avengers stop Thanos. Dr. Strange has started classes of mystic arts but he is facing some issues. With the continuous and exponential increase in the number of proxies in each class, Dr. Strange decides to scrap pen and paper attendance system and have asked for a new system based on QR code. You being a front-bencher have decided to help him out by building an android app for the same.

## Basic Features :

1. Individual Login/Signup for each teacher as well as student.
2. After logging in for the first time, the teacher should be able to set the schedule for each hour of each day (*what batch's class at what time and the subject name*)
3. After selecting the currently scheduled class, the teacher starts taking attendance from QR code.
4. Each student should have a unique QR code associated to him and this code should have his/her photo linked to it for confirmation.
5. After the teacher is done with the attendance, he/she should get the count of total students present and absent (*List of students absent can also be displayed*)
6. A student should be able to see his/her attendance (count and %) in each subject

### Advanced Features :

1. Admin login (There should be only one admin)
2. Whenever a teacher signs up, admin should receive a request of a new account and once he approves it, then only the teacher is allowed to log in.
3. If the attendance of any student gets below 75%, the teacher of that subject should be able to send e-mail to each such student alerting him/her about the same.
4. Admin should be able to generate a list of students who have less than 75% attendance for each class and each subject.

**\*\*USAGE OF RELATIONAL DBMS (like MySQL) IS RECOMMENDED\*\***

# Proximity Notifier

## ( Intermediate/Advanced)

### Problem Statement:

After his family came back from the 'dust', Shield agent Clint Barton dropped the Iron-identity and went back to live with his family. Maintaining household chores is not easy, each day Barton may want to visit many places but may happen to not remember each one of them. Since we know Barton is going through a roller-coaster of emotions (He got his family but lost his best friend !), we need to help him. In the proposed app that you will develop to help Barton, he can set location reminders for places in which he has pending work left.

### Basic Features:

1. User Registration and Sign-In Activity.
2. Retrieving users geographical coordinates using GPS in real time.
3. User can add, edit, delete any reminder, alarm when needed on a Map.
4. As the user reaches in proximity of the region the app should notify it with any pending work associated to that region on a screen popup using map or otherwise.
5. Allow user to gather and save photos, experiences etc associated with a place.
6. App should show user memories while it is in proximity of the region.
7. User can set destination alarms while travelling outstations.

### Advanced Features:

1. Track user location in background.
2. Keep reminding users about their pending works if they never visited the place again. User may setup a deadline before which a task specified at a place (ex. Dues to be paid in bank) has to be

completed. App will then increase the intensity of notification as the deadlines approaches.

3. User can add multiple locations and set multiple alarms .
4. Design a social community through which users can see their friends if nearby in a region and also share experiences about that region.

# Learning App (Advanced)

## Problem Statement:

After defeating Mysterio, Spiderman is back to school and he really wants to focus on studies. Since he does not have his mentor Tony Stark now with him, he wants an application that can fetch him articles of his interest and at the same time solve his doubts.

He asks Prof. Hulk for the help. Since Hulk is not in a position to help after the 'snap', he has given you the task to help Spiderman.

## Basic features:

1. User can register on the app and choose his topics of interest (These may be modified later)
2. App will have a news feed where articles from different websites are fetched.
3. User can downvote or upvote an article.
4. App will have a Q/A platform also where user can ask questions as well as add answer to questions posted by other users.
5. User can edit or delete only his/her post but admins can do it for all the posts.

## Advance features:

1. User should be able to add comments. [No nested comment feature required]
2. Articles can be bookmarked as well as shared to different platforms.
3. Users can add their own articles. Based on upvotes on user's articles and answers, categorize users into different levels/designations. All articles added will have a tag representing the topic of article.
4. Any article by user should pass through admin for permission (if admin denies permission, it won't get posted).

5. User can directly message admins( You can have a chat space where all admins are already added and user can drop his/her message there).
6. Sorting of shown posts according to date of posting, upvotes etc.
7. User should be able to view profile of other users who answer his/her queries.

Bonus Feature : try implementing 'follow' feature. If user follows another user, he/she must get that users articles in his her feed.

# Garbage Management (Advanced)

## Problem Statement:

With Wakanda now being exposed to the world, there are some problems which T'Challa (Black Panther). A lot of waste is being generated but there is no proper way to efficiently dispose the waste. T'Challa wants you to build an android app and save the country of Wakanda. Since Wakanda scientists were not using android platform earlier, android development is new for them. So, you are assigned with the task. In the proposed app, the user should mark a garbage location on the map. The app system should then collect all such points and arrange them in order to be collected by the cleaner appointed for that locality. The cleaning truck should collect the garbage specified by the app based on its capacity and notify the system about the garbage being collected from that locations.

## Basic Features:

1. Separate Login/Sign Up for admins, cleaners and users.
2. User can mark garbage position on the map or search for the position in the map.
3. User can add details about the type of garbage, and its severity (upvotes system can be implemented as the marked garbage will be visible to others).
4. Admin can verify cleaners request .
5. Show all garbage locations and find the shortest path to gather them with polyline on the map.

## Advanced Features:

1. Cleaners should see only those garbage points for the area he is assigned to. Illegal marking of garbage should be prevented.
2. Maintain cleaners performance data and user can add reviews about them.
3. User can give a feedback/complaint about a cleaner to the admin.
4. Add photos of the garbage for verifying the authenticity of users request by the admin(Machine learning may be applied to train a model for garbage photos).

Bonus Feature: \*\*\* Applying ML to consider all previous garbage locations while deciding for new locations in its route.

## Open Theme

The theme for this project is **MNNIT UTILITY APP**. You will have to create a college specific app that solves one of the problems of our college. You can make anything you want but make sure you stick to the theme. However, you would be required to mention the aims and features of your app in your abstract submission. Also, keep in mind that your submission will be judged on the basis of the quality of the idea that you have implemented and the practical usage of your app.



# Contact details and Room Number of Coordinators:

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\*\*\*\*\*THE END\*\*\*\*\*