



# Softablitz Problem Statements

B.Tech 1st year

# Rules

1. A team should comprise of **at most 3** team members.
2. There is **no branch restriction**.
3. You can attempt at most **2 problem** statements.
4. **Plagiarism** is strictly prohibited and hence it may lead to debarring from Cyberquest events :).(Learning is more important than winning)
5. Each problem carries separate points.
6. Dates regarding the submission of the problems will be communicated later.
7. In case of any doubt contact the coordinators.
8. It is recommended to implement the mentioned features first then go for extra features.
9. Firstly read each and every problem statement and then decide which one suits you best.

# Calci Cool

## Description:

One day Sabu and Chacha Chaudhary were having quarrel over whether Chacha Chaudhary's mind is faster than a calculator or not. So Sabu being your friend asked you to help him design an Advanced Calculator to check Chacha Chaudhary's speed. So your task is to help Sabu by designing an advanced calculator.



## Basic Features: (30 Points)

1. Basic mathematical functions like addition, subtraction, division & multiplication.
2. Other common functions like Square root, Cube root, Power.
3. Checking whether a number is Prime, Armstrong number.
4. Handling basic cases like division by zero, handling floating point numbers..

## Advanced Features: (50 Points)

1. Handling expressions with parentheses.(Eg:  $1+(5*4)-(12+3)$  )
2. Conversion of currencies, weights, lengths and as much as you can think of.(You can have another mode of a calculator)
3. Handling basic trigonometric expressions.(Do your own research)
4. Extra marks for impressive UI & extra features.

# Tic-Tac-Toe

## Description:

Tom & Jerry are always determined to prove that each one of them is better than the other. So they wanted to end this fight forever by proving superior from the other by playing a simple game. So you being the common friend of Tom & Jerry, are tasked to design a tic-tac-toe game.(Also k/a noughts & crosses)



## Basic Features: (40 Points)

1. Implement the game as described.
2. Names of both the users should be displayed throughout.
3. Winner's name should be displayed at the end of the game.

## Advanced Features: (50 Points)

1. Users can decide the whether they want to choose 'X' or 'O'.
2. A user has only 5 seconds of time to make a move.
3. Instead of 'X' & 'O' use images of Tom & Jerry respectively.
4. Extra marks for impressive UI & extra features.

# Find My Match

## Description:

Ash Ketchum is not being able to catch more Pokemons for a long time. So all the pokemons decided to help him & created a new rule according to which, Ash will be able to catch a Pokemon, if he finds two identical pokemons at the same time. Help Ash achieve his goal by creating such a board game.



Check out this link:

<http://www.memozor.com/memory-game-online-free/for-kids/kids-4-years-old-games/online-memory-game-for-kids-pokemon-game>

## Basic Features: (50 Points)

1. Implement the basic game as described.
2. Score should be displayed throughout the game.
3. The user is asked to input his/her name which is displayed continuously throughout the game.

## Advanced Features: (60 Points)

1. Grid size is variable.
2. A live timer is displayed for each game.
3. Instead of numbers, use pictures.(Of Pokemons)
4. Addition of sound.(Search it yourself)
5. Extra marks for impressive UI & extra features.

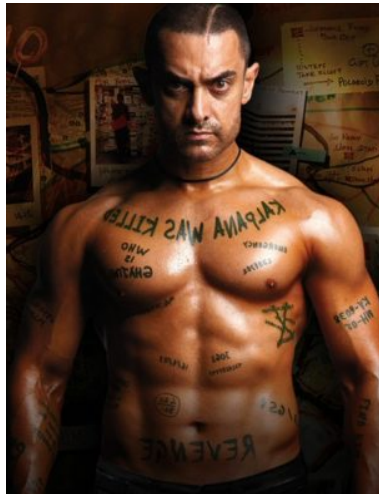
# Revolutionary Reminder

## Description:

Sanjay Singhania from Ghajini is suffering from short term memory loss & keeps on forgetting things. Being a rich man he won't use the regular notepads. Therefore he hires you to create a revolutionary notepad to help him. So you have to design a notepad capable of remembering things.

Note: You may have to use file handling for this, so please go through the following links:

- <https://www.javatpoint.com/java-io>
- <https://www.geeksforgeeks.org/file-handling-java-using-filewriter-filereader/>



## Basic Features: (60 Points)

1. User is able to edit notes.
2. Current date and time should be displayed.
3. Cut, copy & paste.

## Advanced Features: (70 Points)

1. Should include different formatting options.(Change font type, color & size)
2. Undo & Redo.
3. Add basic keyboard shortcuts.
4. Extra marks for impressive UI & extra features.

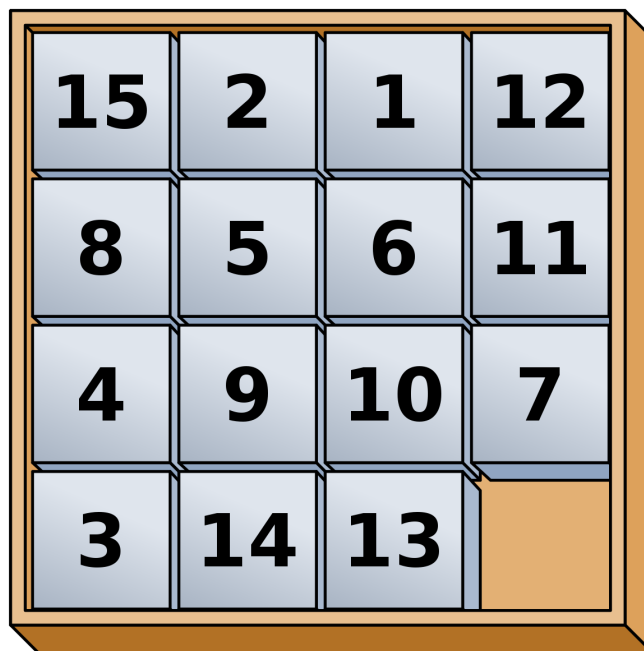
## Arrange the Mess

### Description:

Once Scooby & his friends were solving a mystery about an ancient temple whose door was locked. So Scooby & Shaggy were given the task to open the door through a puzzle but as usual they screwed up in the end. So Fred, Daphne & Velma decided to crack the puzzle by arranging the mess created by Scooby & Shaggy. So they asked you to help them solve the puzzle.

Check out the following link for the puzzle:

<https://www.helpfulgames.com/subjects/brain-training/sliding-puzzle.html>



### Basic Features: (60 Points)

1. Implement the game as described.
2. User name should be displayed.
3. The puzzle should end when the numbers are displayed in sorting order.
4. Total number of moves should be displayed throughout the game.



### Advanced Features: (60 Points)

1. Time should be displayed throughout the game.
2. Grid size should be variable.
3. Images can be used instead of numbers.
4. Extra marks for impressive UI & extra features.

# Track My Money

## Description:

Bruce Wayne (our very own Batman) likes to buy a lot of lavish things. But one day Alfred scolds him saying that Bruce does not know how to manage his money. As Bruce is very scared of Alfred he must find a solution to it. So Bruce asks for your help. So the task is to design an application that keeps track of Bruce's money.



## Note:

This app may require the use of Database Connectivity. You can study this from the following links-

- <https://www.youtube.com/watch?v=nW13FmTdkjc>
- <https://www.w3schools.com/sql/>

Check out the following app for further clarification:

- <https://www.moneymanagerex.org/>

## Basic Features(70 Points)

1. Add income and expenditure.
2. Divide the income and expense into different categories.
3. Add the current date and time for the expense.

### Advanced Features:(70 Points)

1. Show different statistics for a particular category & time range.
2. Login for different users.(You would have to implement Sign Up Feature as well)
3. Description for each expense and income can be added.
4. Extra marks for impressive UI & extra features.

## Open Problem

Thor has the most powerful hammer in the world. He thinks no one can defeat him. So he has put an open challenge to prove your worthiness to wield that hammer. So you can challenge him and prove that you are worthy enough by creating a powerful software.

So this is an open problem, hence design a software of your choice. Anything you can think of. Points will be awarded on your design, creativity of the idea & the utility of the software. (Please do not copy from the internet)

