## Advance Track Project

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**MENTOR - DHAWAL UPADHYAY** 

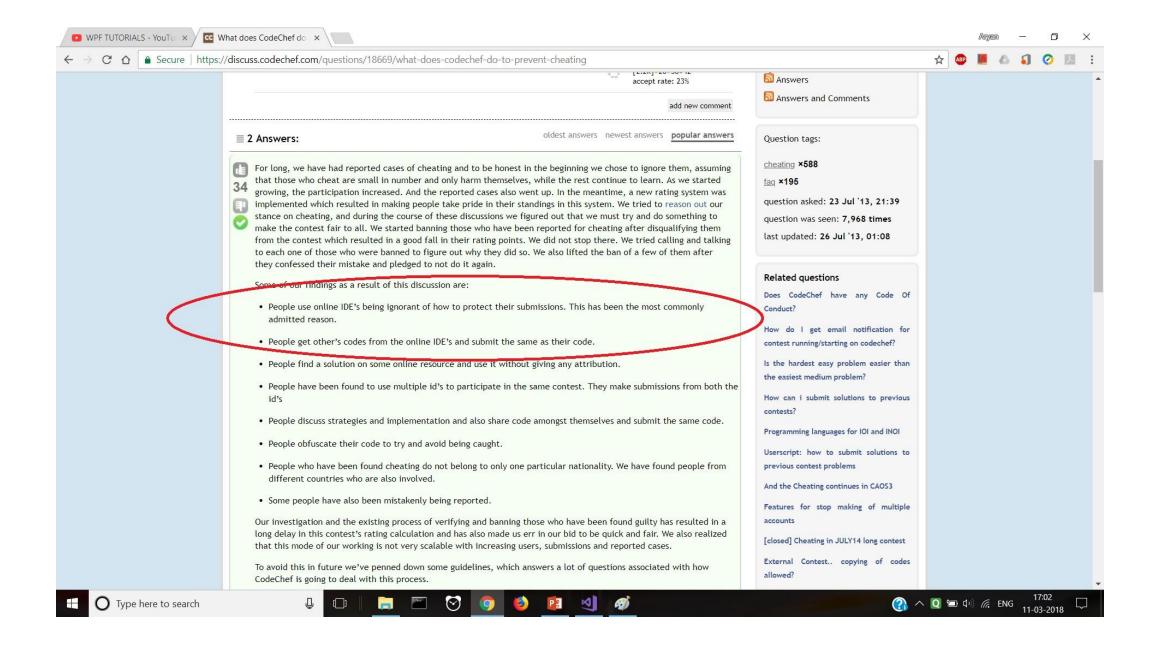
INSTRUCTOR IN CHARGE - INDRANIL SAHA, Purushottam Kar

# GitHub Repo

https://github.com/aryanc403/AdvanceTrackProject (Public)

#### Problem

- I need a tool that can do the task of online ide.
- Which I can use before submitting my solution on online platform like codeforces, codechef, SPOJ etc.
- To check the validity of my soln.
- And protect my source code, because protection of source code is most important for a programmer.
- To avoid being caught in palgarism, which sometimes happens when we forget to make our code private.
- https://discuss.codechef.com/questions/18669/what-does-codechefdo-to-prevent-cheating



- Although those who want to cheat cannot be stopped.
- But we can prevent our shelf from being caught in palgarism.

• To over come this situation we can use offline ide.

• But ...

Another problem faced with offline ide is -

We have to select test case online and copy it.

• Then we have type again and again sample test cases / other manual case each time when run our code to check our solution.

Typing test cases each time is little bit boring and,

• It is also time consuming when the we are on short contest (e.g. 2.5 hrs and 5 question etc.)

We really need to save our time in copying test cases.

• And for a platform like codeforces when there are more than one test case. ..

### Solution

- Although there are may tools available online to solve this problem.
- I want to have my own software to serve this purpose.

• So, I present to you my project idea.

AdvanceTr	ackProject		- 0	×
Path (URL)	Problem Statement URL	<u> </u>	Fetch.	
	Dath to Freedomble City		_	
Path (.exe)	Path to Exectutable File		Browse	2
Problem State	ement.			
INPUT	Expected Output	Program Output	Result	
Time Limit (	in s) - 2		Run	

### Solution

- It will serve as gap between online and offline ide.
- My software along with offline ide, can get rid of these problems.

- It is an automatic tester for programming contests such as CodeForces rounds.
- It will parse the problem statement, extract sample test cases (inputs and outputs) from it, and verify the correctness of your program against them.
- It is built to provide maximum automation and to relieve the contestant as much as possible.

#### Features -

- It will parse Entire Problem Statement.
- Fetches sample test cases from problem statement.
- Allows you to edit, view, add test cases.
- Customizable time limits.
- Mini version of own ide.
- Handles all verdicts WA,TLE, RE, and AC.
- Currently supports only C/C++.
- Currently runs only on windows.

#### Tools available and used

- Using C# and Microsoft library files.
- Creating Web Scrapper to fetch sample test cases.
- I am Using HtmlAgilityPack.
  - For getting html components.
- I am Using System.Net and System.Net.Http
- Working in Microsoft Visual Studio.

#### Past work

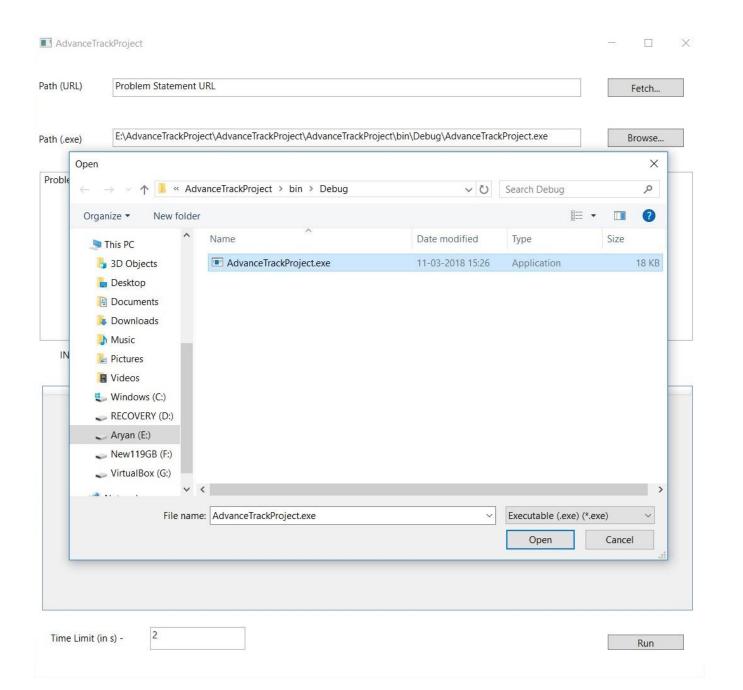
- Yes, People have worked in past on Same problem statement.
- They have already released full featured application for public release (4 years ago).
- (Although many people do not know about this in our campus :P).
  - <a href="http://codeforces.com/blog/entry/13141">http://codeforces.com/blog/entry/13141</a> (Acknowledgement Project Idea).
  - <a href="https://github.com/dj3500/hightail">https://github.com/dj3500/hightail</a> (Original application is created in Java).

## Why Problem is Worth Solving again ??

- Problem is related to something which every competitive programmer needs/uses to protect his/her code.
- It is more fun when you use your own created application to debug your problems.
- And most important reason -
- This project teaches me process of app development.
- How to create web scrapper.
- Using Microsoft environment for application development.
- And exploring tools provided by Microsoft for Application Development.
- And this project will help me. For how to take on self project in future.

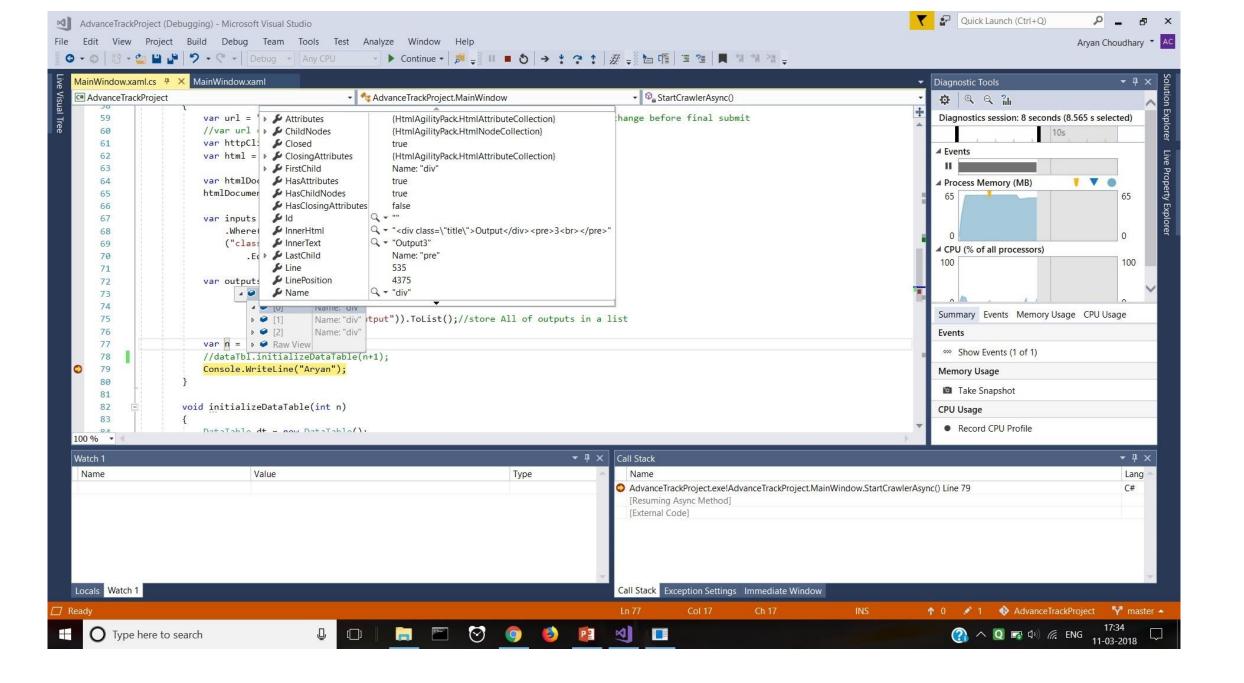
## Progress (Task Completed)

- Tasks Done
  - Created WPF Form.
  - Front End Task Completed.
- Front End
  - Added Buttons for each task.
  - Added data grid.
  - Added functionality of Browse Button.
  - Added functionality of Fetch Button(Partial).



## **Back End**

- Work Done
  - Added Web Scrapper. (Task Completed).
  - Until now My Project can fetch Sample Input/Output and add then in a list.
- Work To be Done
  - Add Content (sample input/output) to data grid.
  - Input Sample input in stdin, after running program, and capture stdout.
  - Add feature to Handles all verdicts WA,TLE, RE, and AC.
  - Allows you to edit, view, add test cases. This is added automatically when I will add rows to data grid.



## Challenges Faced So Far -

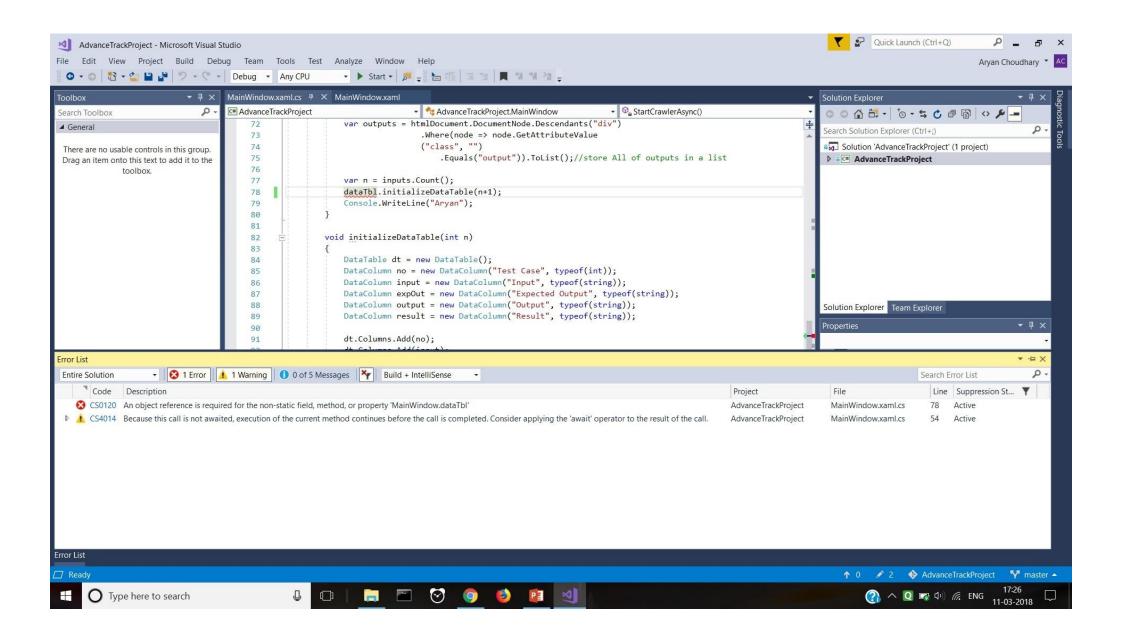
- This is my first project (of any kind) related to CSE.
- First encounter on application development.
- First encounter with Visual Studio.
- First hand on experience with C# and OOP.

## Steps taken to over come these Challenges -

- Watched Youtube Playlists.
- Acknowledgement –
- https://www.youtube.com/playlist?list=PL3dYK0ZLo-4rZnJSXDeiJVjZtzloOK KmZ
- https://www.youtube.com/watch?v=mY4o\_E0bilc&t=158s&list=PL4uUzn4l Rv77y7h9CT7uSevLk8FrdCbih&index=6
- https://www.youtube.com/watch?v=4fGOLn3azZA&t=197s&list=PL4uUzn4l Rv77y7h9CT7uSevLk8FrdCbih&index=15
- <a href="https://www.youtube.com/playlist?list=PL4uUzn4lRv77y7h9CT7uSevLk8Fr">https://www.youtube.com/playlist?list=PL4uUzn4lRv77y7h9CT7uSevLk8Fr</a> dCbih&disable polymer=true
- And many more.

- Implemented Web Crawler for two different websites, Before using for project to download.
- Every command or function before using in project made trial run on other dummy project and seen its output in debug.
- And then implemented in project.

## More Challenges faced -



## More Challenges facing right now.

Lets recall my features –

Add Sample input in stdin, after running program, and capture stdout.

Handles all verdicts WA,TLE, RE, and AC.

#### To overcome

Handles all verdicts WA,TLE, RE, and AC.

- Solution one –
- we can check the return code given by main function.
- But There are many types of RE, and handling each is difficult.
- And any other runtime error may hault the program.

# Add Sample input in stdin, after running program, and capture stdout.

 Approach 1 - I am looking for any library function which can do this for me.

- Approach 2 I was told by my TA that in linux, we have command line function which can copy text (What we have typed/What is output).
- If cmd (windows) also have this then I can run Program on cmd and capture the output to handle this.

