

Advance Track Project

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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-codechef-do-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 many 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.

AdvanceTrackProject

Path (URL)

Problem Statement URL

Fetch...

Path (.exe)

Path to Executable File

Browse...

Problem Statement.

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 Scraper 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).
 - <http://codeforces.com/blog/entry/13141> (Acknowledgement - Project Idea).
 - <https://github.com/dj3500/hightail> (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).

AdvanceTrackProject

Path (URL)

Problem Statement URL

Fetch...

Path (.exe)

E:\AdvanceTrackProject\AdvanceTrackProject\AdvanceTrackProject\bin\Debug\AdvanceTrackProject.exe

Browse...

Open

« AdvanceTrackProject » bin » Debug

Search Debug

Organize

New folder

This PC

3D Objects

Desktop

Documents

Downloads

Music

Pictures

Videos

Windows (C:)

RECOVERY (D:)

Aryan (E:)

New119GB (F:)

VirtualBox (G:)

Name	Date modified	Type	Size
AdvanceTrackProject.exe	11-03-2018 15:26	Application	18 KB

File name: AdvanceTrackProject.exe

Executable (.exe) (*.exe)

Open

Cancel

Time Limit (in s) -

2

Run

Back End

- Work Done –
 - Added Web Scraper. (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.

AdvanceTrackProject (Debugging) - Microsoft Visual Studio

File Edit View Project Build Debug Team Tools Test Analyze Window Help

Debug Any CPU Continue

Live Visual Tree

MainWindow.xaml.cs x MainWindow.xaml

AdvanceTrackProject

AdvanceTrackProject.MainWindow

StartCrawlerAsync()

```
59 var url =  
60 //var url =  
61 var httpCl  
62 var html =  
63  
64 var htmlDoc  
65 htmlDocumen  
66  
67 var inputs  
68 .Where  
69 ("class  
70 .E  
71  
72 var outputs  
73  
74  
75  
76  
77  
78 //dataTable.InitializeDataTable(n+1);  
79 Console.WriteLine("Aryan");  
80  
81  
82 void initializeDataTable(int n)  
83 {  
84     DataTable dt = new DataTable();
```

Attributes (HtmlAgilityPack.HtmlAttributeCollection)
ChildNodes (HtmlAgilityPack.HtmlNodeCollection)
Closed true
ClosingAttributes (HtmlAgilityPack.HtmlAttributeCollection)
FirstChild Name: "div"
HasAttributes true
HasChildNodes true
HasClosingAttributes false
Id
InnerText
LastChild Name: "pre"
Line 535
LinePosition 4375
Name "div"

[0] Name: "div"
[1] Name: "div"
[2] Name: "div"
Raw View

change before final submit

100 %

Watch 1

Name	Value	Type
------	-------	------

Locals Watch 1

Call Stack

Name	Lang
AdvanceTrackProject.exe!AdvanceTrackProject.MainWindow.StartCrawlerAsync() Line 79	C#
[Resuming Async Method]	
[External Code]	

Call Stack Exception Settings Immediate Window

Diagnostic Tools

Diagnostics session: 8 seconds (8.565 s selected)

Events

Process Memory (MB)

CPU (% of all processors)

Summary Events Memory Usage CPU Usage

Events

Show Events (1 of 1)

Memory Usage

Take Snapshot

CPU Usage

Record CPU Profile

Ready

Ln 77 Col 17 Ch 17 INS 0 1 AdvanceTrackProject master

Type here to search

17:34 11-03-2018

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-4rZnJSXDeiJVjZtzloOKKmZ>
- https://www.youtube.com/watch?v=mY4o_E0bilc&t=158s&list=PL4uUzn4IRv77y7h9CT7uSevLk8FrdCbih&index=6
- <https://www.youtube.com/watch?v=4fGOLn3azZA&t=197s&list=PL4uUzn4IRv77y7h9CT7uSevLk8FrdCbih&index=15>
- https://www.youtube.com/playlist?list=PL4uUzn4IRv77y7h9CT7uSevLk8FrdCbih&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 -

AdvanceTrackProject - Microsoft Visual Studio

File Edit View Project Build Debug Team Tools Test Analyze Window Help

Debug Any CPU Start

Quick Launch (Ctrl+Q)

Aryan Choudhary AC

Toolbox

Search Toolbox

General

There are no usable controls in this group. Drag an item onto this text to add it to the toolbox.

MainWindow.xaml.cs

MainWindow.xaml

AdvanceTrackProject

AdvanceTrackProject.MainWindow

StartCrawlerAsync()

```
72 var outputs = htmlDocument.DocumentNode.Descendants("div")
73 .Where(node => node.GetAttributeValue
74 ("class", ""))
75 .Equals("output")).ToList();//store All of outputs in a list
76
77 var n = inputs.Count();
78 dataTable.initializeDataTable(n+1);
79 Console.WriteLine("Aryan");
80 }
81
82 void initializeDataTable(int n)
83 {
84     DataTable dt = new DataTable();
85     DataColumn no = new DataColumn("Test Case", typeof(int));
86     DataColumn input = new DataColumn("Input", typeof(string));
87     DataColumn expOut = new DataColumn("Expected Output", typeof(string));
88     DataColumn output = new DataColumn("Output", typeof(string));
89     DataColumn result = new DataColumn("Result", typeof(string));
90
91     dt.Columns.Add(no);
92     dt.Columns.Add(input);
93     dt.Columns.Add(expOut);
94     dt.Columns.Add(output);
95     dt.Columns.Add(result);
96 }
```

Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'AdvanceTrackProject' (1 project)

AdvanceTrackProject

Properties

Error List

Entire Solution 1 Error 1 Warning 0 of 5 Messages Build + IntelliSense

Search Error List

	Code	Description	Project	File	Line	Suppression St...
	CS0120	An object reference is required for the non-static field, method, or property 'MainWindow.dataTbl'	AdvanceTrackProject	MainWindow.xaml.cs	78	Active
	CS4014	Because this call is not awaited, execution of the current method continues before the call is completed. Consider applying the 'await' operator to the result of the call.	AdvanceTrackProject	MainWindow.xaml.cs	54	Active

Ready

0 2 AdvanceTrackProject master

Type here to search

17:26 11-03-2018

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 halt 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.

Thank You!!