PROJECT REPORT

CODOS

COMPUTER SCIENCE ENGINEERING

FSBE-IV

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

GUJARAT – INDIA.

SUBMITTED BY:-

NIKHIL SAINI (540) –20140338000841187

JEET RABARI (537)-20140338000833733

VAIBHAV SOLANKI(547) – 20140338000833884

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(I)

ACKNOWLEDGEMENT:-

This project has been a great mode of understanding and putting to the practice what was covered during the academics. It has also been a valuable experience for us in real times of real life work in the Computer Science and Engineering department which has helped to prepare us to apply ourselves better and become a successful IT professional. Of Course, all this was not possible without the support and guidance of many people, and hence, we would like this to take this opportunity to acknowledge their support towards us.

We are thankful to our project guide Mr. Viral Kapadia Sir for his invaluable encouragement and inspiration and for being a great guide throughout the project.

During this project we have received immense support and assistance from all the intellectual and helpful colleagues. Apart from this, we wish to acknowledge our academics tutors who have mentored us throughout.

(II)

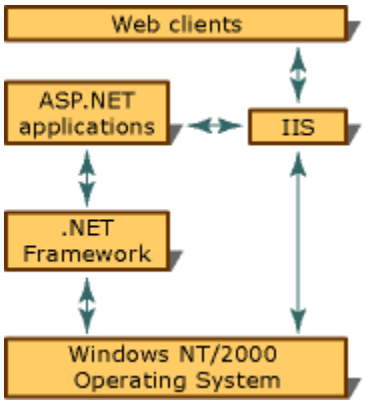
TECHNOLOGIES USED

1. ASP.NET

OVERVIEW

ASP.NET is a unified Web development model that includes the services necessary for you to build enterprise-class Web applications with a minimum of coding. ASP.NET is part of the .NET Framework, and when coding ASP.NET applications you have access to classes in the .NET Framework. You can code your applications in any language compatible with the common language runtime (CLR), including Microsoft Visual Basic and C#. These languages enable you to develop ASP.NET applications that benefit from the common language runtime, type safety, inheritance, and so on.

ARCHITECTURE



As the illustration shows, all Web clients communicate with ASP.NET applications through Microsoft Internet Information Services (IIS). IIS deciphers and optionally authenticates the request. If Allow Anonymous is set to **true**, no authentication occurs. IIS also finds the requested resource (such as an ASP.NET application), and, if the client is authorized, returns the appropriate resource.

In addition to the built-in ASP.NET security features, an ASP.NET application can use the low-level security features of the .NET Framework.

Features

- Bundling and minimisation Feature.
- Strongly Typed Data Controls.
- Model Binding - Isolating the Web Form from the Model.
- Value Providers.
- Support for OpenID in OAuth Logins.
- Support for improved paging in ASP.NET 4.5 GridView control.
- Enhanced support for asynchronous programming.
- Support for web sockets.
- Support for HTML5 form types.

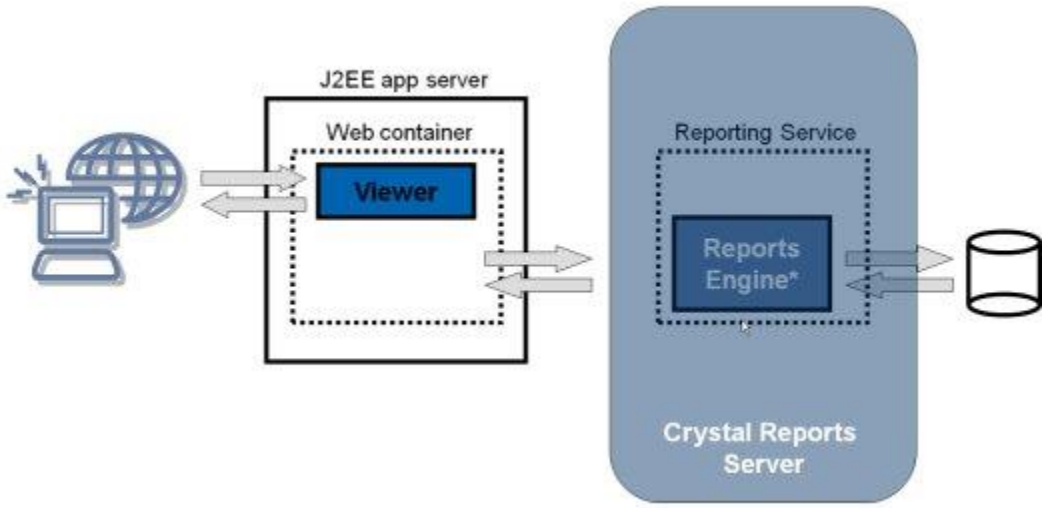
2. CRYSTAL REPORTS BY SAP

OVERVIEW

SAP Crystal Reports is a Business Intelligence tool which is used to generate reports from both SAP and non-SAP data sources. It enables end users to generate reports that include exceptional visualizations and implement new business requirements into reports to reduce dependency on IT and Report developers.

SAP Crystal Reports can connect to any data source that includes Relational databases like Oracle, OLAP data source systems like BW, or also with XML data. You can create a simple report or you can also use complex or specialized tool of Crystal Reports to create advance level reports for end users. It is mostly used for pixel perfect reporting for CEO's and Managers.

ARCHITECTURE



FEATURES

- Intuitive design environment
- Design acceleration features
- Powerful data mash-ups
- Wizards and experts for report creation
- Database expert for graphical table linking
- Field explorer to manage report fields
- Drill down in runtime
- Auto save
- Editable preview window
- Browse field data
- Move, resize, and multi select objects
- Custom templates
- Repository for component reuse
- Workbench tool for managing projects
- Automatic patch notification and installation

(III)

Project Profile

→Introduction

Codos:

Codos is competitive programming challenges for both consumers and businesses, where developers compete by trying to program according to provided specifications. Codos' programming challenges can be solved in a variety of programming languages (including Java, C++, PHP, Python, JavaScript) and span multiple computer science domains like Data Structures, Algorithms, and Mathematical domains like Graph theory and Combinatorics.

In addition to individual programming challenges, Codos also hosts contests where users compete on the same programming challenges during a set period of time. On Codos companies can also host their challenges.

Definition of the System:

This system is for individual who want to practice and sharp their programming skills as well as companies who want to hire employees or host challenges.

Objective of the system:

Objective of this system is to provide portal for user to sharpen their programming skills. User can solve the problem and provide the solution. This System evaluates user solution. Also system also provide platform for hosting programming challenges to different companies.

System Requirement Specification:

Functional Requirements:

Function	User
Login	All user
Sign Up	All user
Edit Profile	All user
Registration in Challenges	All user
Compile & Test	All user
Submit Solution	All user
View profile	All user
View Previous challenges	All user
View Upcoming Challenges	All user
View Live Challenges	All user
Practice problems	All user
Add challenges	Only Admin/company user
Add Problems	Only Admin

Non-functional requirement

Secure:

- Access of project based on kinds of users.
- Malicious code is run but not effect to sever.

User friendly: The GUI will be such that it can be easily learnt by all kinds of user.

Limitation

- Use API so required internet for execute program.
- Most preferable browser is chrome.
- Admin is not responsible for putting erroneous challenge.

PURPOSE OF THE SYSTEM

This project aims:

- User can improve their programming skill.
- Companies can hire employees using this site.
- User can improve skill in specific computer area.
- User can download their report of their performance.

OVERVIEW OF THE SYSTEM

Codos is a system that provides online programming platform to the user. In this system we cover vast computer domain like algorithm, mathematical etc. Companies have an added functionality of posting challenges.

Codos is developed in ASP.NET technology and the report are generated using the Crystal Report service of SAP.

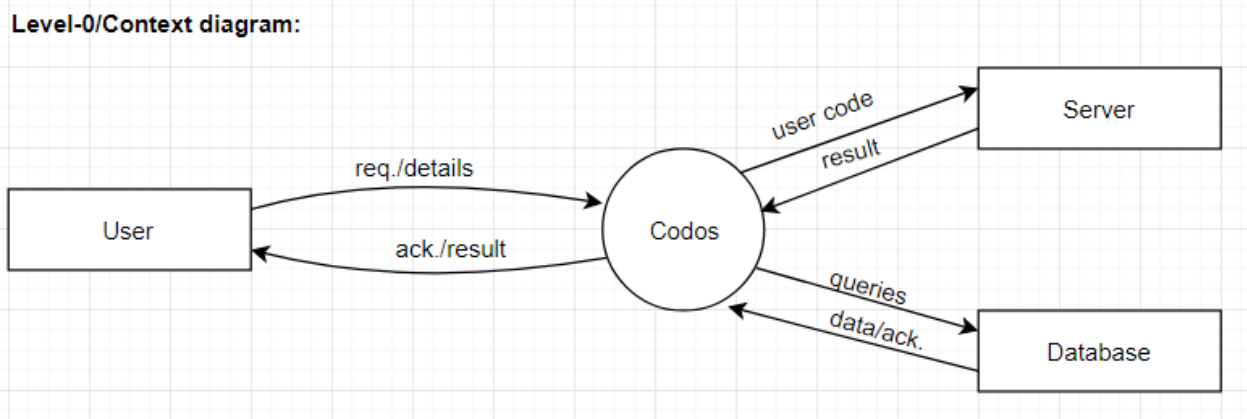
(IV)

DFD: -

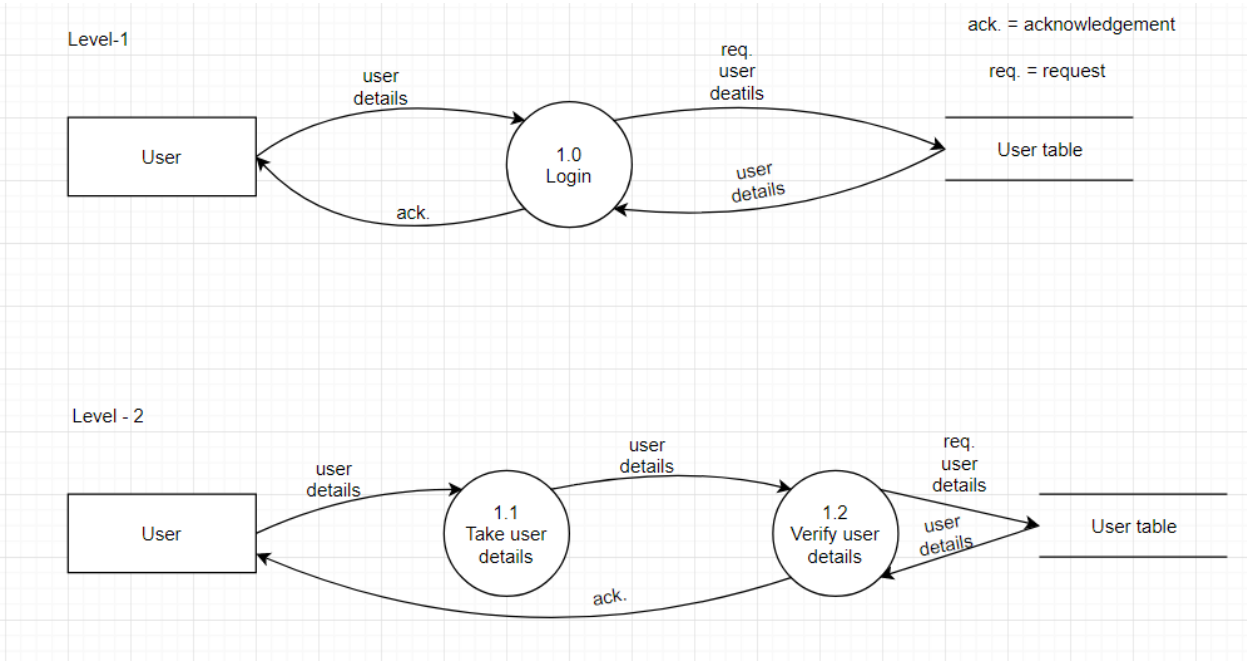
Functionalities:

- **Login**
- **Sign Up**
- **Edit profile**
- **Registration in challenges**
- **Compile & Test**
- **Submit solution**
- **Add challenges/problem**
- **View Profile**
- **View Participated Challenges**
- **View Upcoming Challenges**
- **View Live Challenges**
- **View Practice Problem**
- **Create contest**

Level-0/Context diagram:



Login:



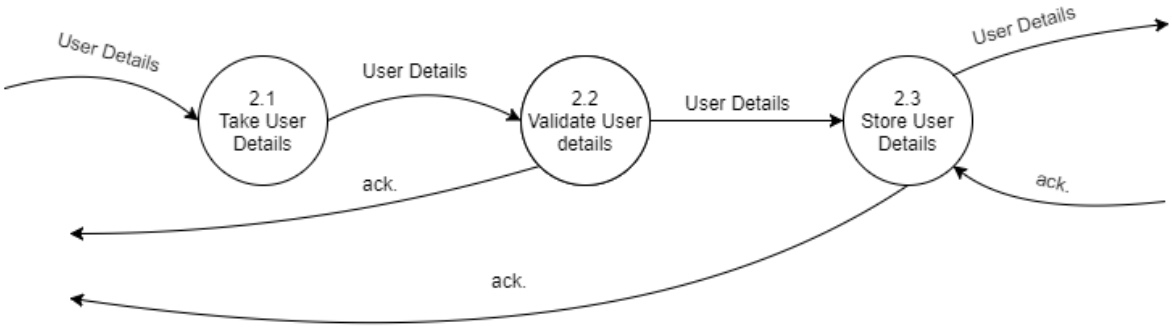
Sign Up:

ack. = Acknowledgement

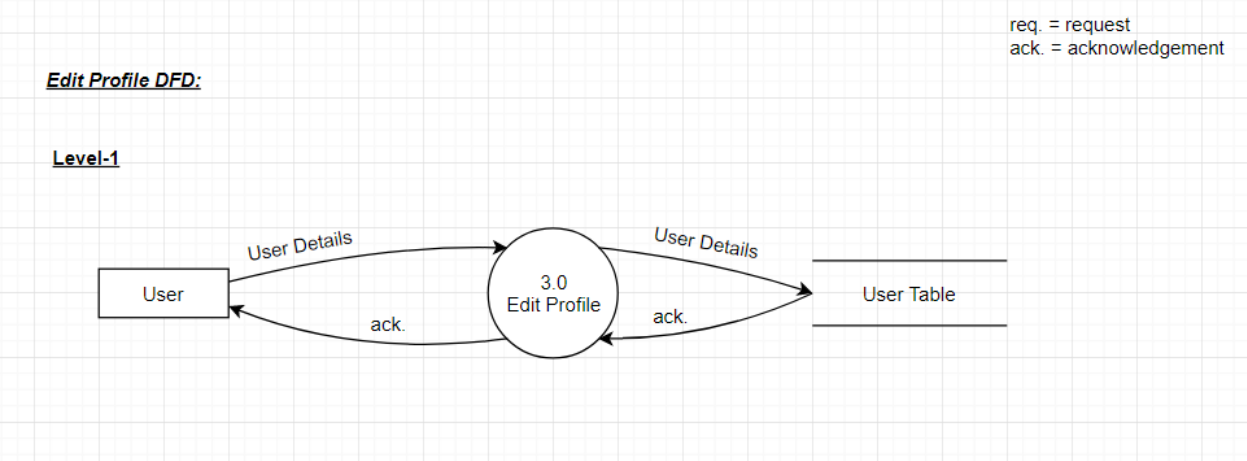
Sign-Up DFD:

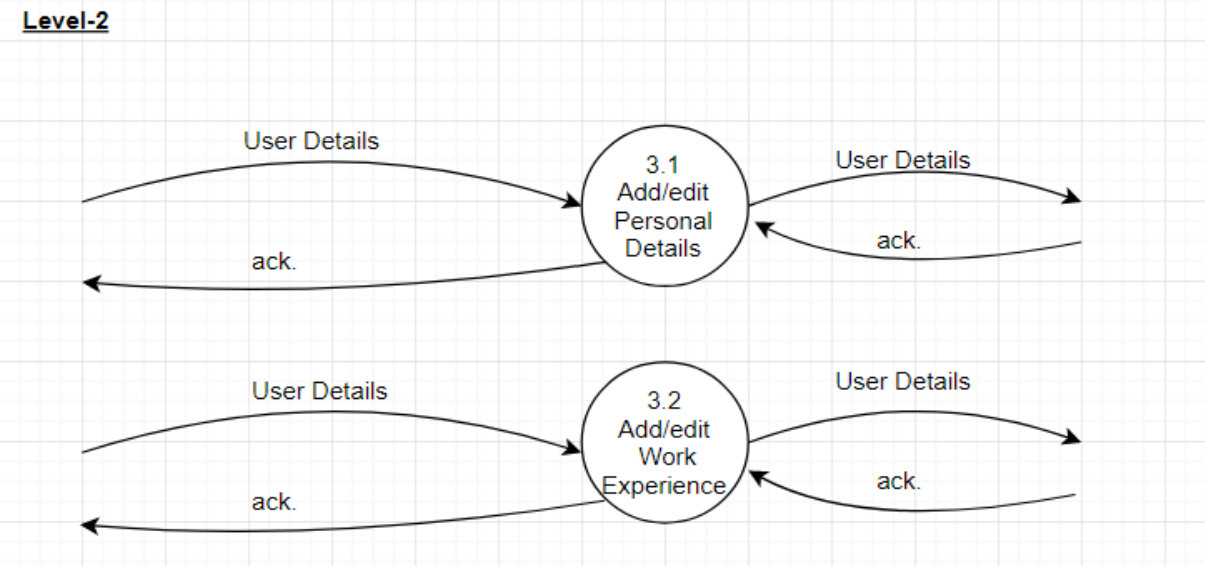
Level-1

Level-2

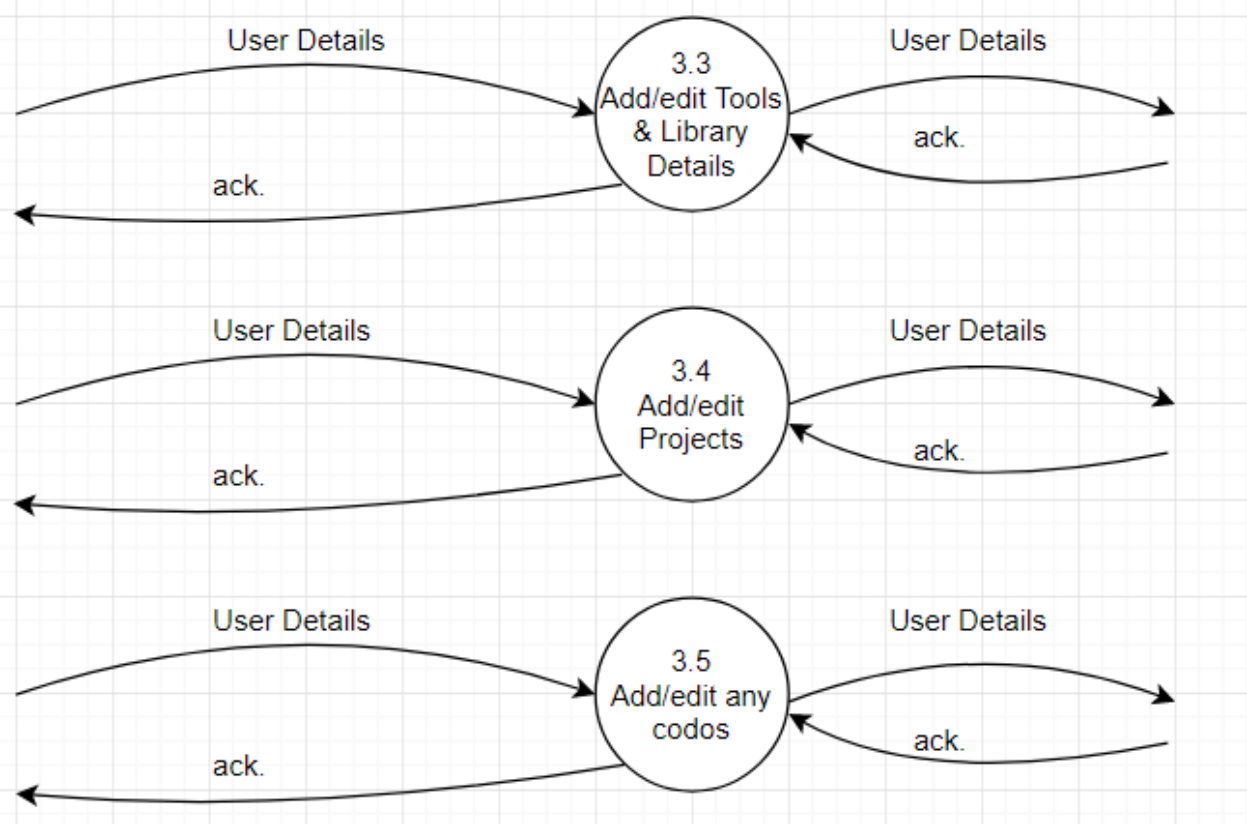


Edit Profile:

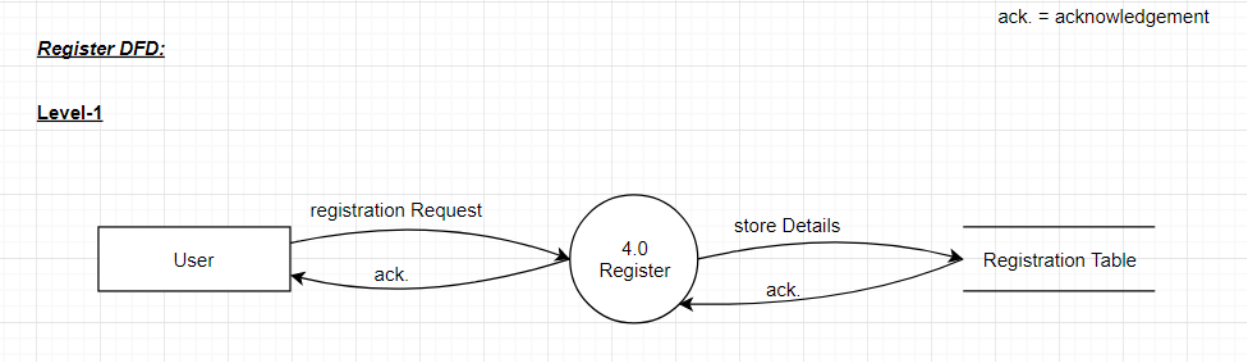




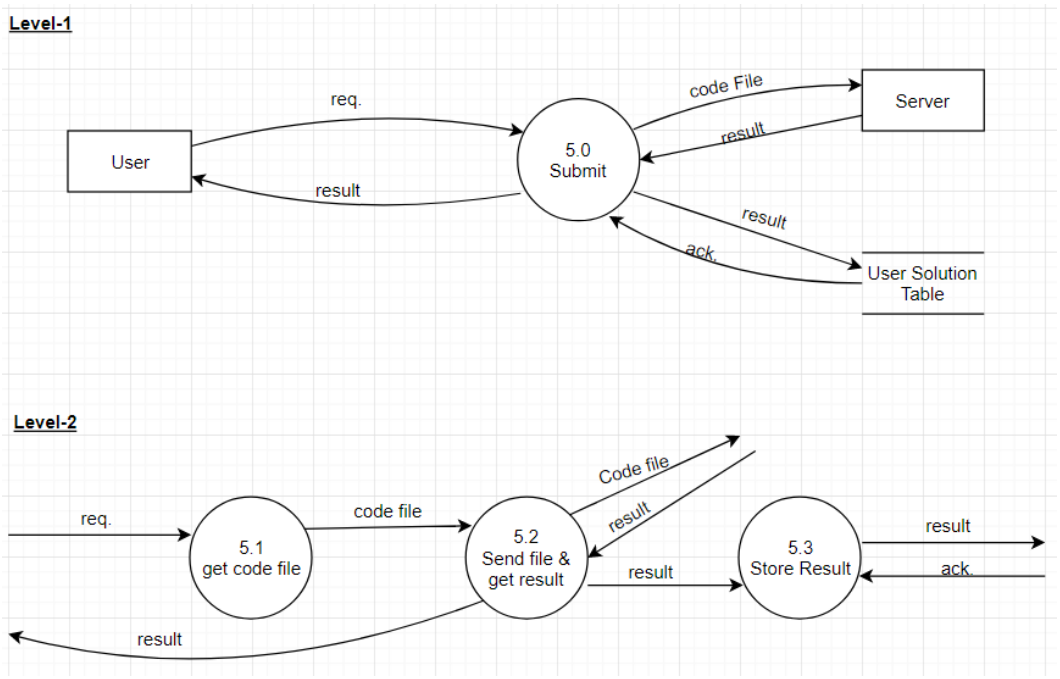
Level-2(Cont.)



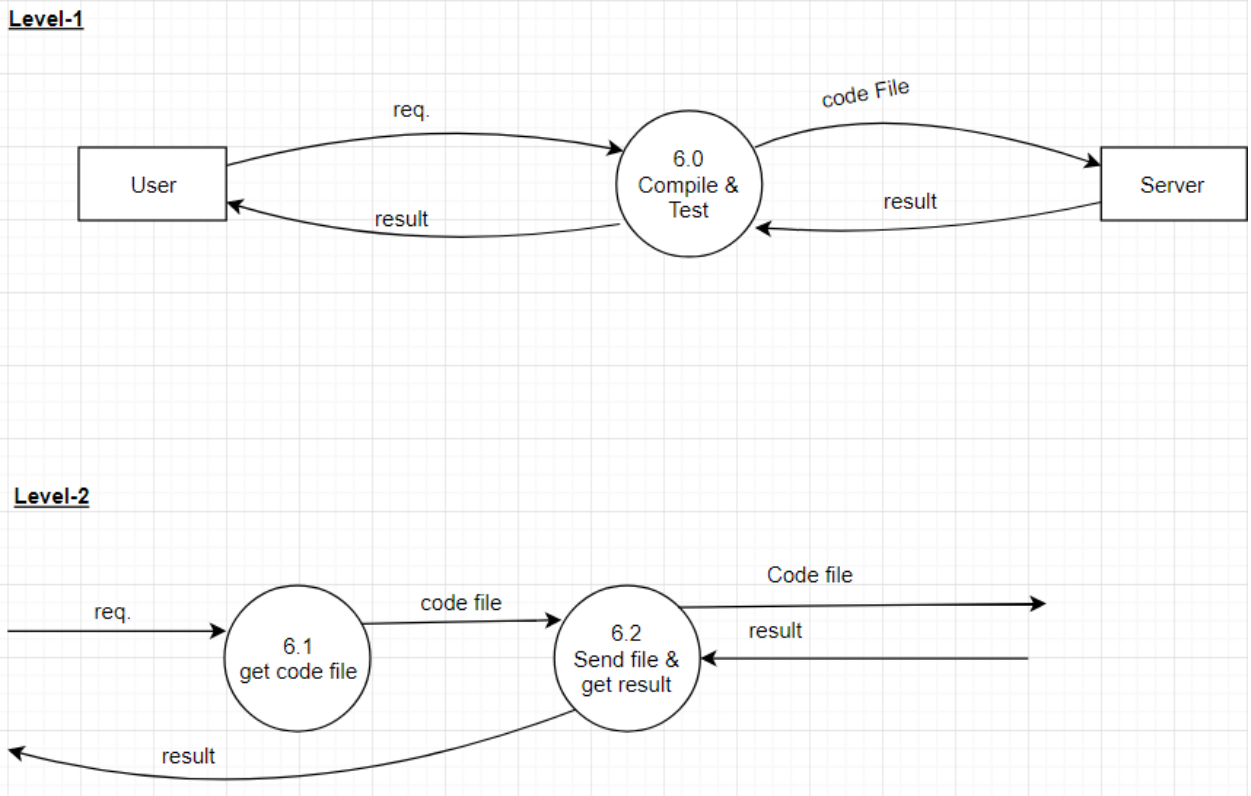
Registration in challenges:



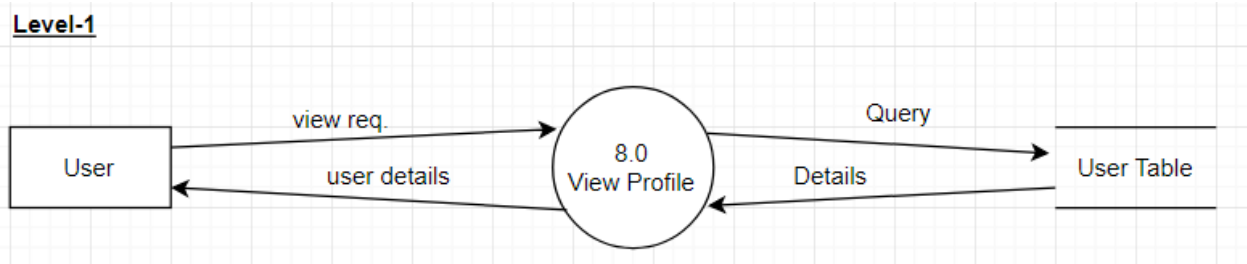
Submit Solution:

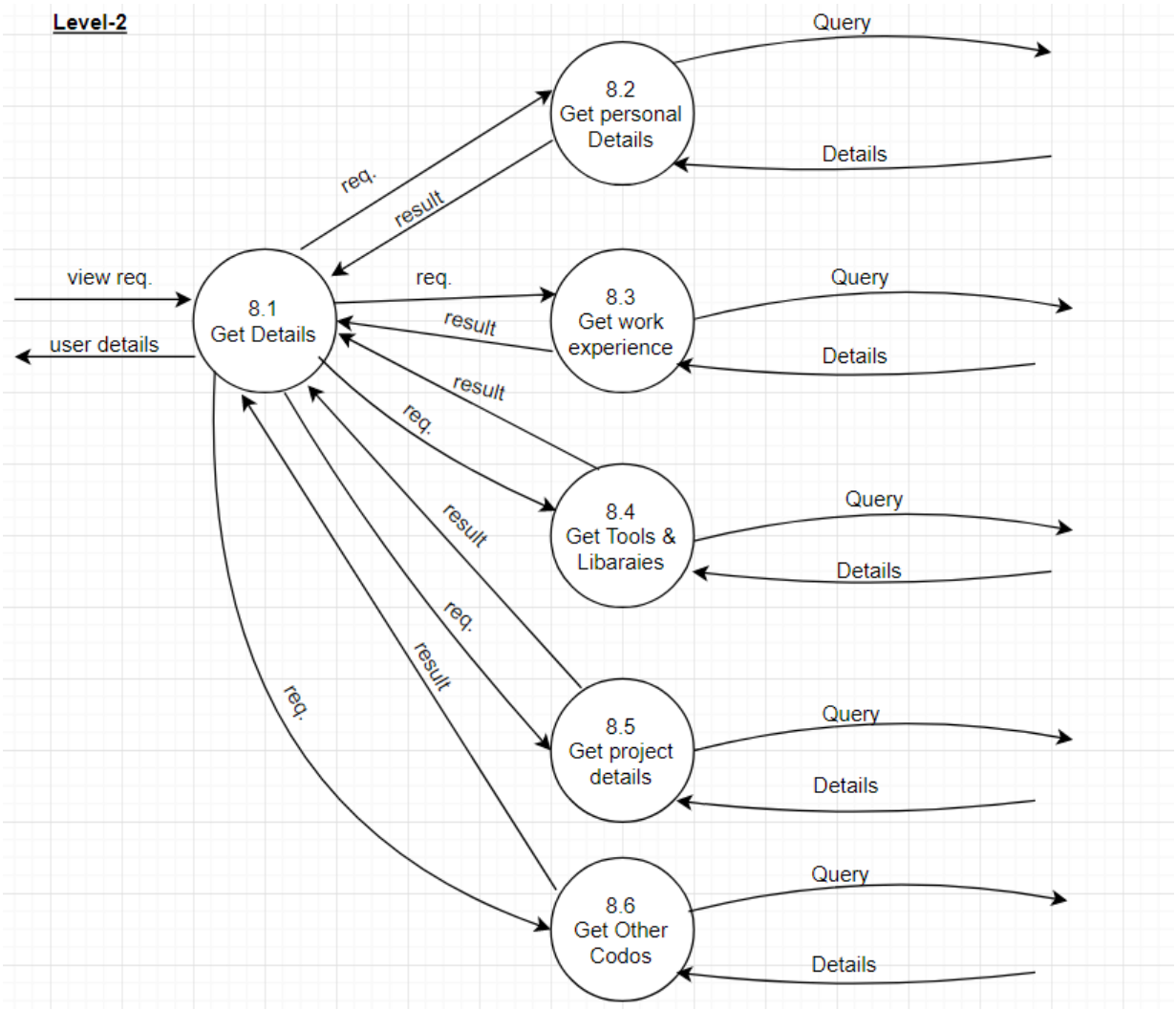


Compile & Test:

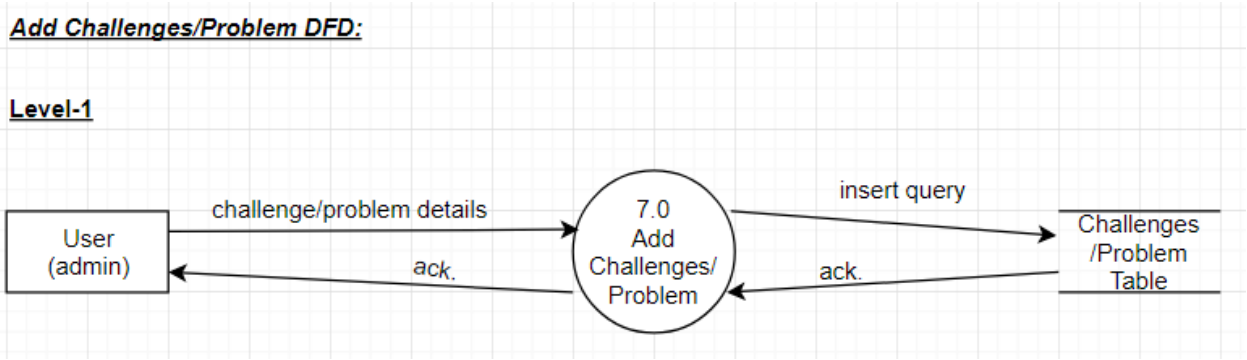


View Profile:



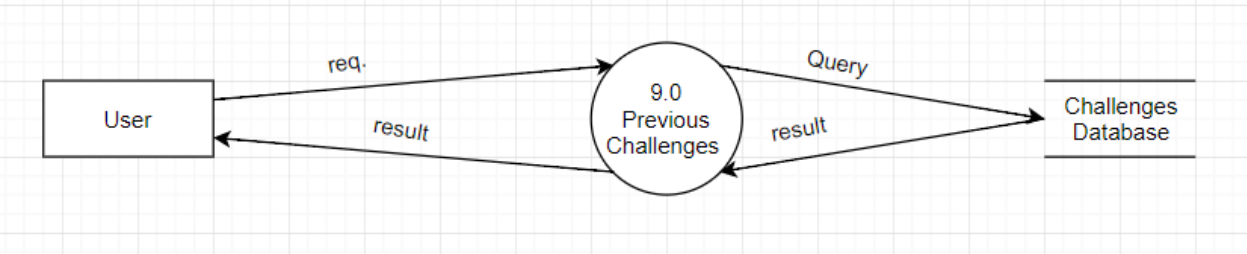


Add Challenges/Problem:

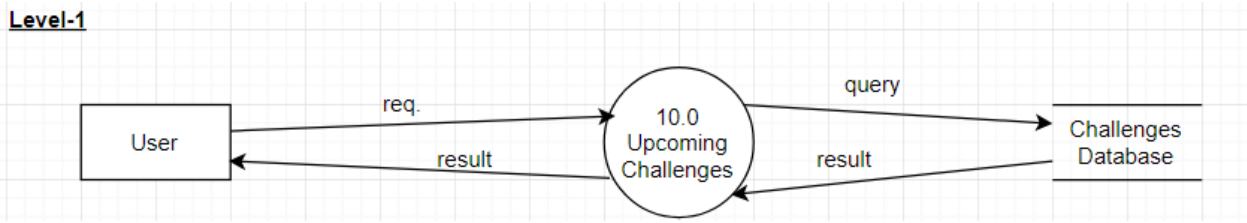


View Previous Challenges:

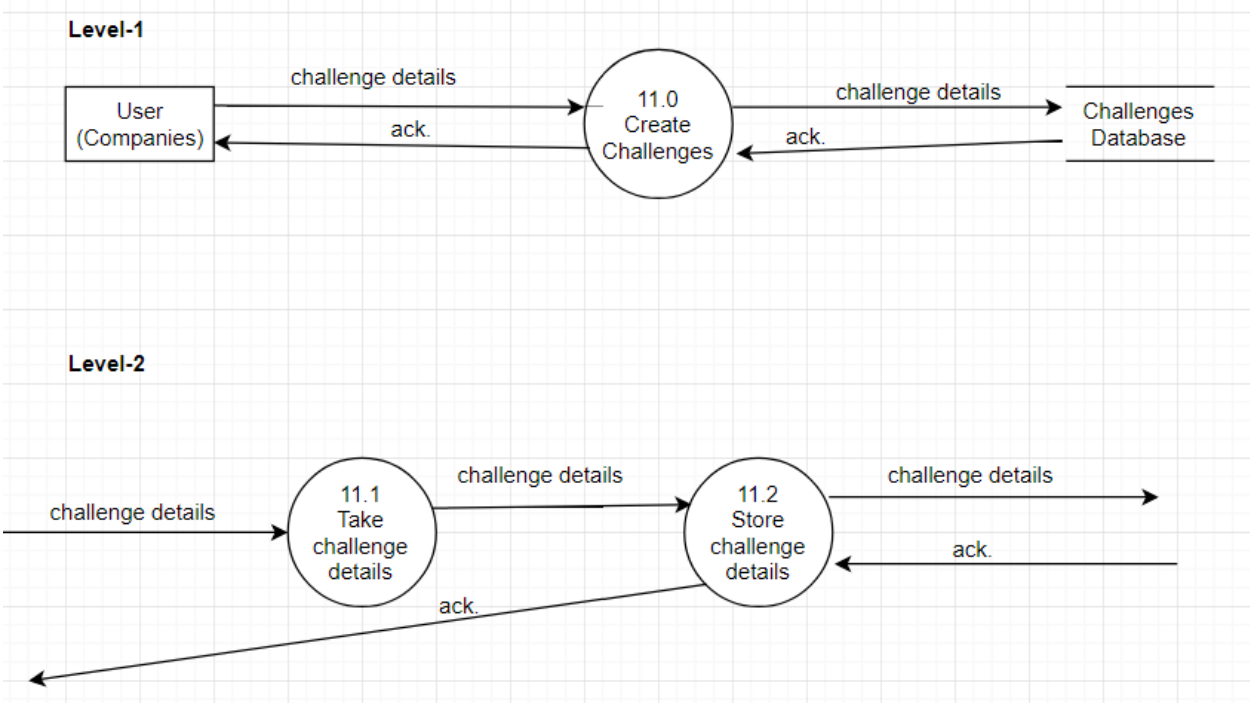
Level-1



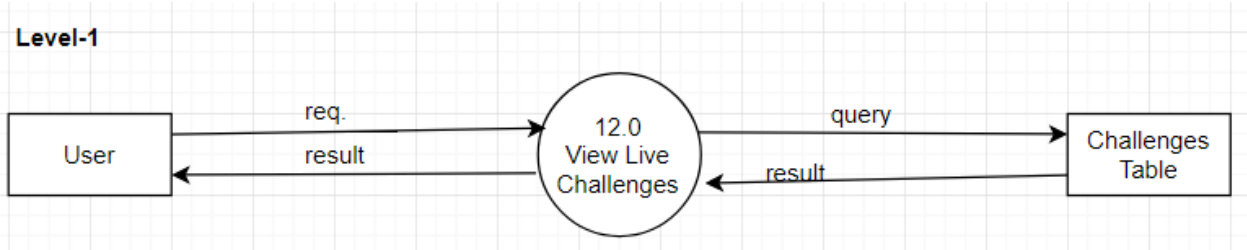
View Upcoming Challenge:



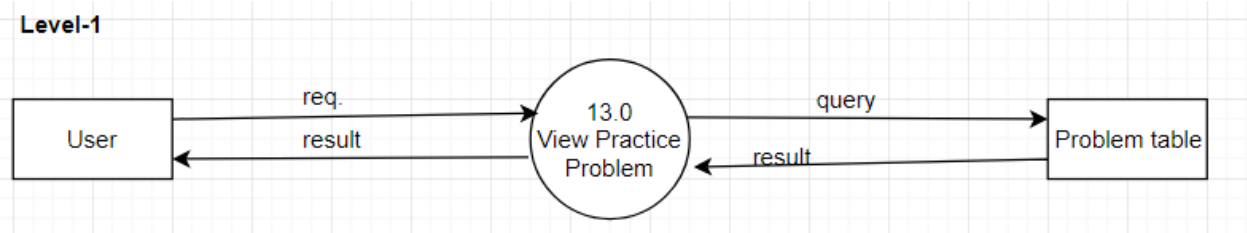
Create Contest:



View Live challenges:



View Practice Problem:



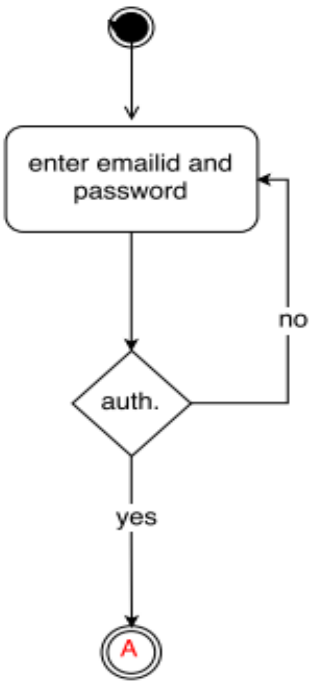
(V)

Activity Diagram:-

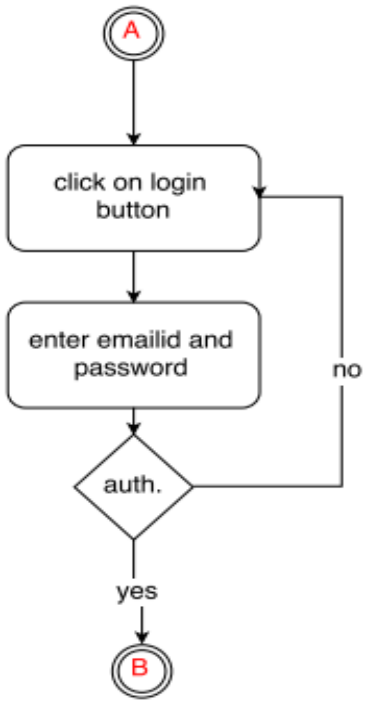
- **Sign up**
- **Login**
- **Create competition**
- **Practice**
- **Submission**
- **View profile**
- **Change profile**
- **Company details**
- **Administration**
- **Competition**
- **User activity**
- **Report generation**
- **Notification**
- **Company list**
- **User list**

Sign up & login

sign up

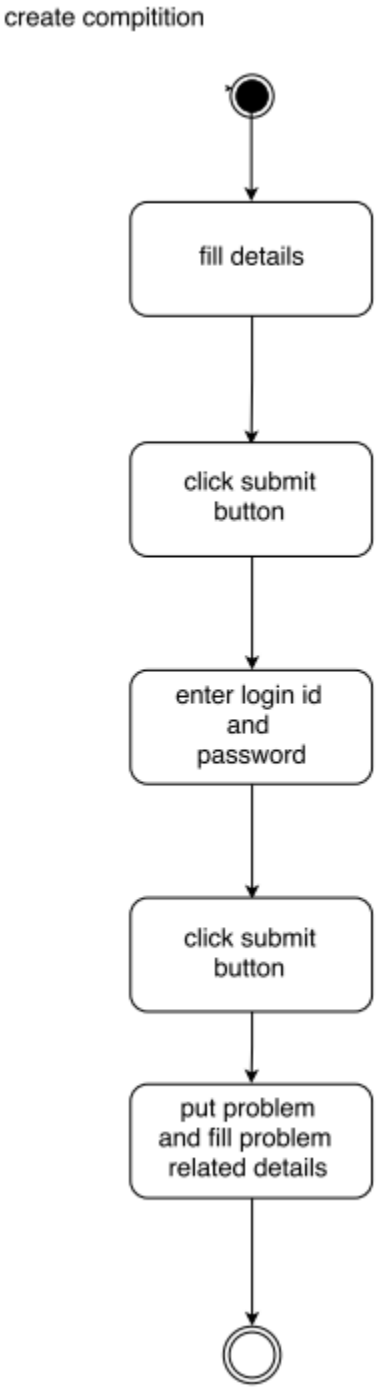


login

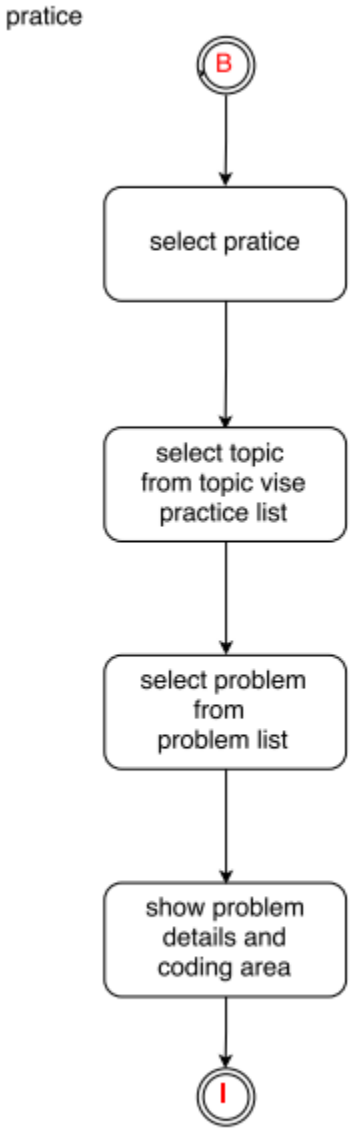


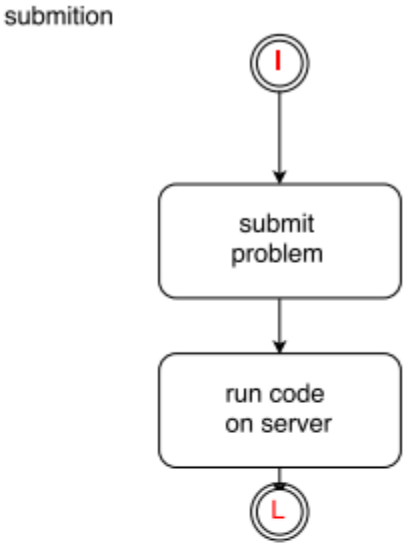
auth. = authentication

Create Competition

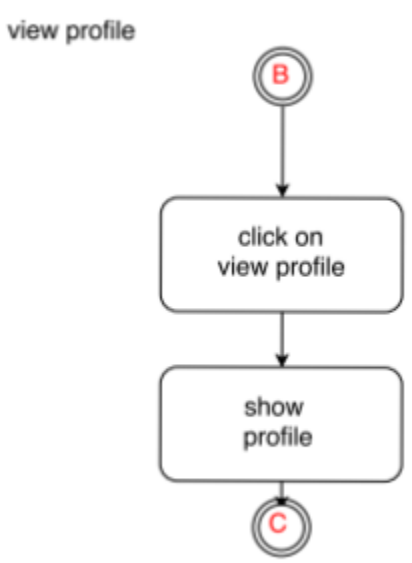


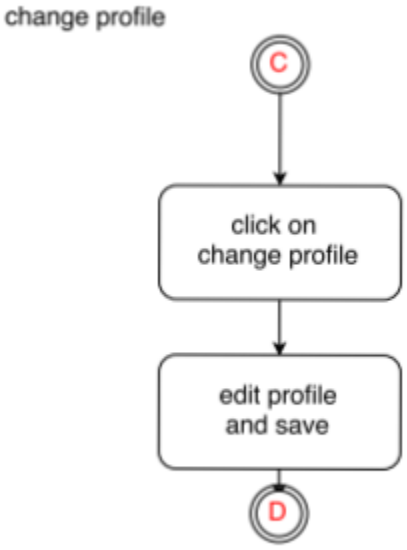
Practice & submission



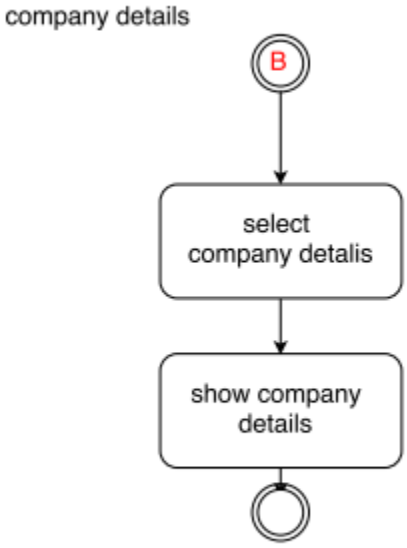


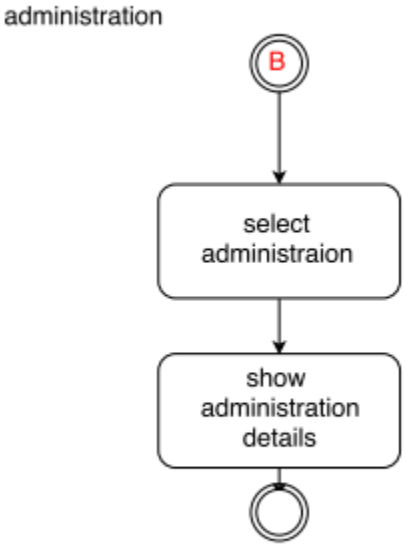
view profile & change profile



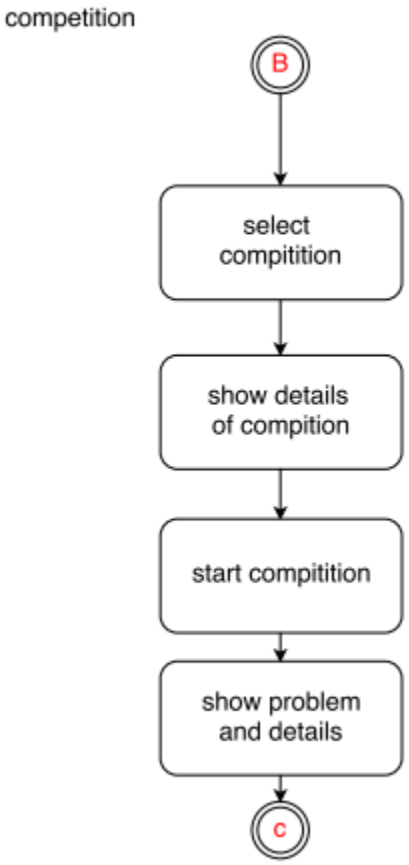


company details & administration

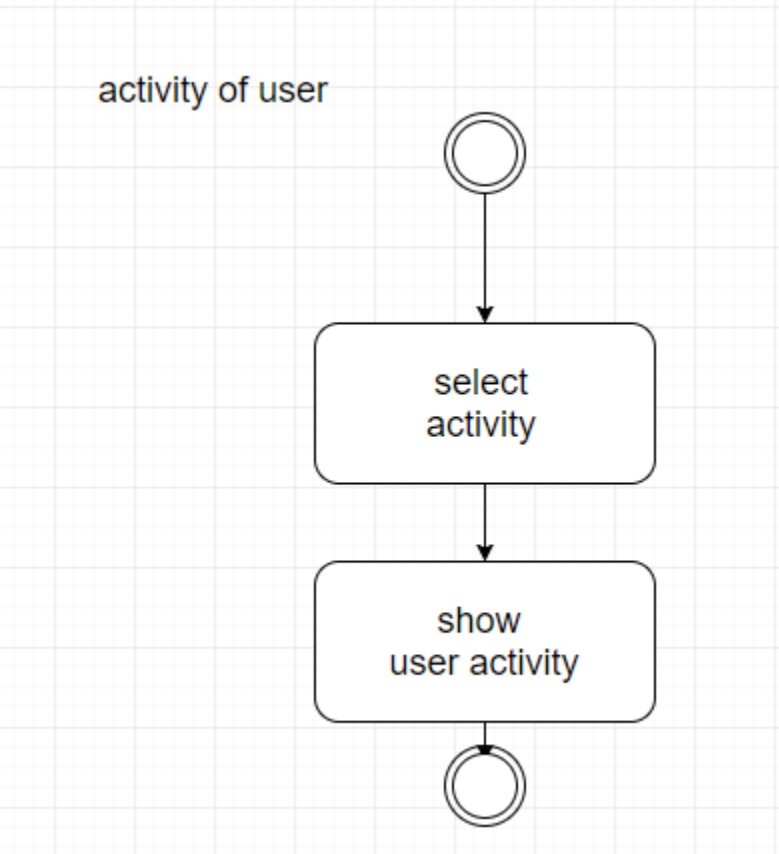




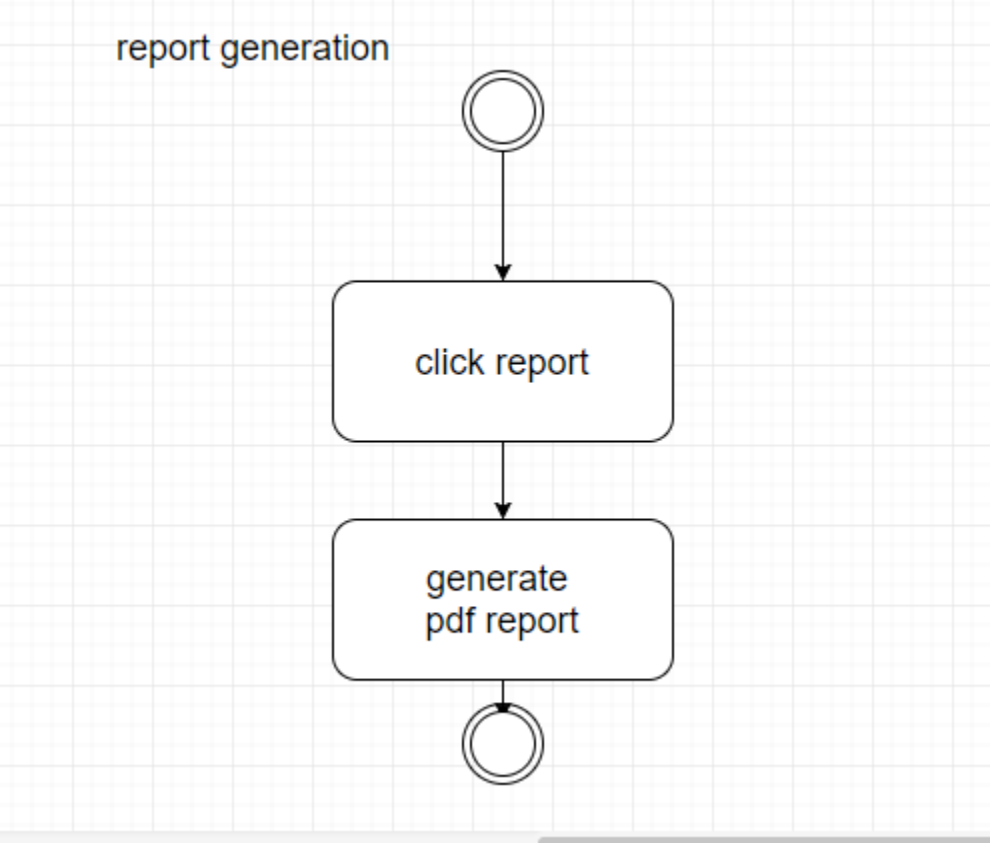
competition



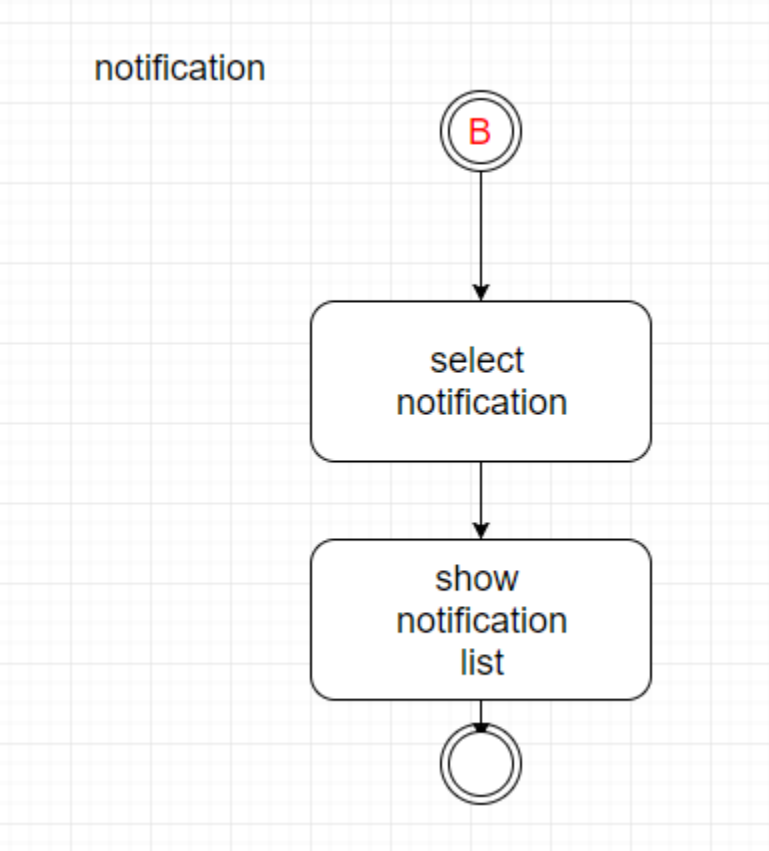
User activity



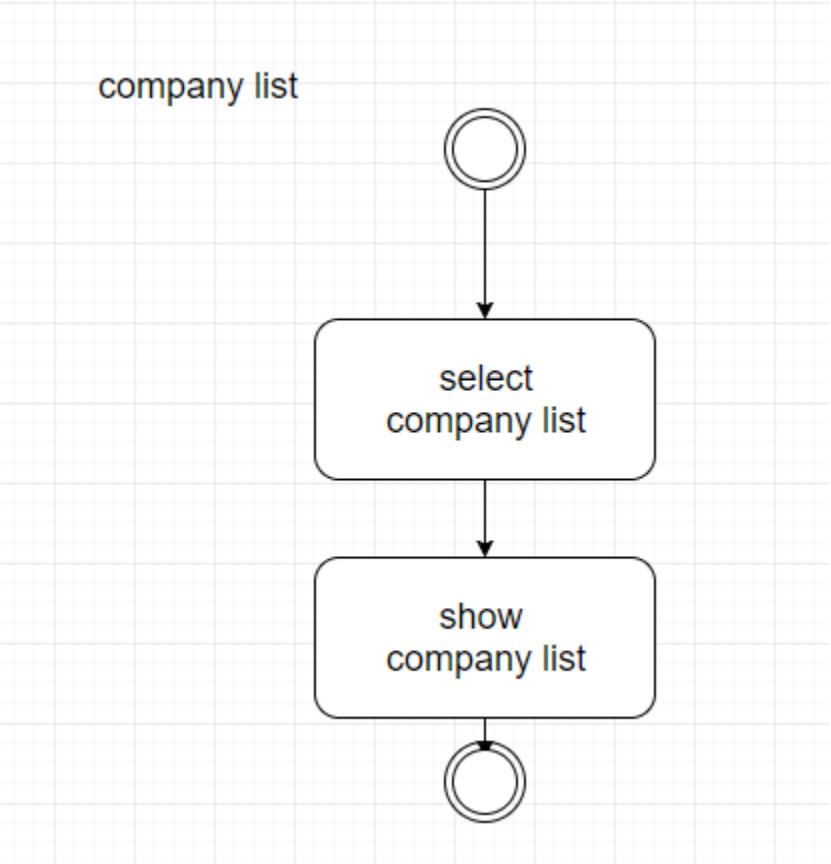
Report generation



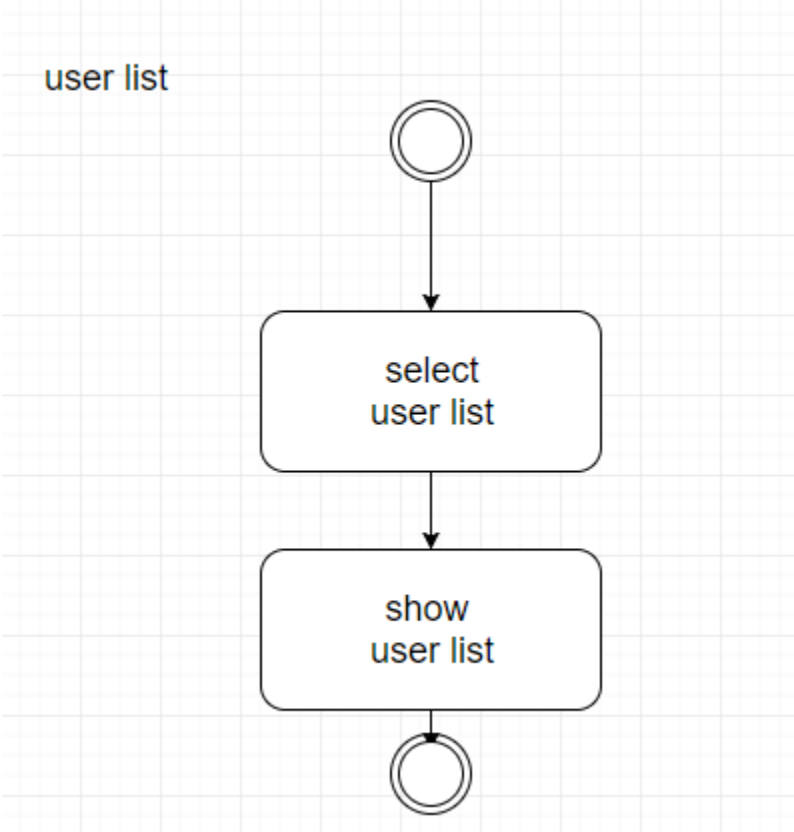
Notification



Company list



User list



(VI)

SOFTWARE DEVELOPMENT METHODOLOGY

6.1 AGILE MODEL

Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile Methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks.

Agile model believes that every project needs to be handled differently and the existing methods need to be tailored to best suit the project requirements. In Agile, the tasks are divided to time boxes (small time frames) to deliver specific features for a release.

Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features; the final build holds all the features required by the customer.

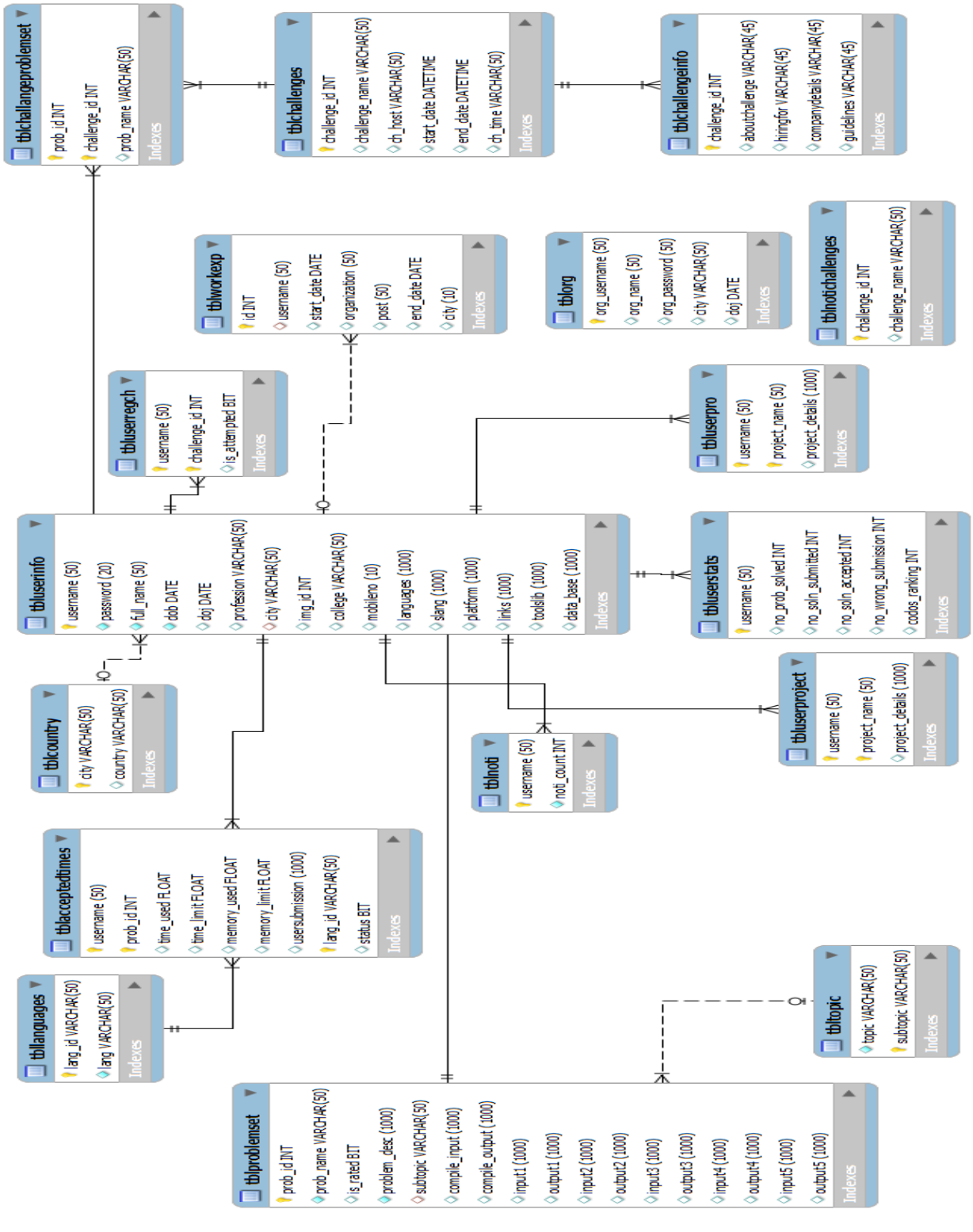
6.2 AGILE MODEL

Reasons for choosing Incremental Model:

- Delivers early partial project.
- Easy to manage project.
- Enables concurrent development and delivery within an overall planned context.
- Easley apply change on project.

(VII)

ENTITY RELATION SHIP DIAGRAM



(VIII)

Data Dictionary:

Tables:

Tblacceptedtimes

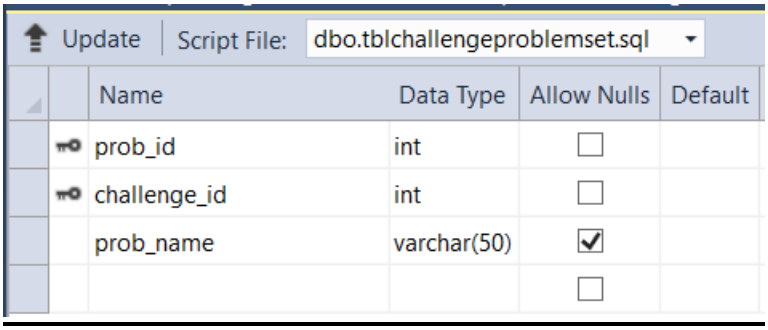
	Name	Data Type	Allow Nulls	Default
🔑	username	nvarchar(50)	☐	
🔑	prob_id	int	☐	
	time_used	float	☑	
	time_limit	float	☑	
	memory_used	float	☑	
	memory_limit	float	☑	
	usersubmission	nvarchar(MAX)	☑	
🔑	lang_id	varchar(50)	☐	
	status	bit	☑	
			☐	

tblchallengeinfo

Update | Script File: dbo.tblchallengeinfo.sql

	Name	Data Type	Allow Nulls	Default
🔑	challenge_id	int	☐	
	aboutchallenge	nvarchar(MAX)	☐	
	hiringfor	nvarchar(MAX)	☑	
	companydetails	nvarchar(MAX)	☑	
	guidelines	nvarchar(MAX)	☑	
			☐	

tblchallengeproblemset



Update | Script File: dbo.tblchallengeproblemset.sql

	Name	Data Type	Allow Nulls	Default
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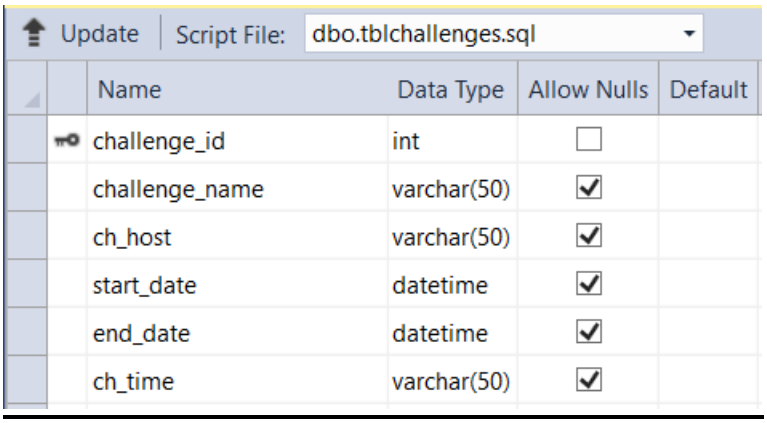
🔑	challenge_id	int	☐	
	prob_name	varchar(50)	☑	
			☐	

tblchallenges



Update | Script File: dbo.tblchallenges.sql

	Name	Data Type	Allow Nulls	Default
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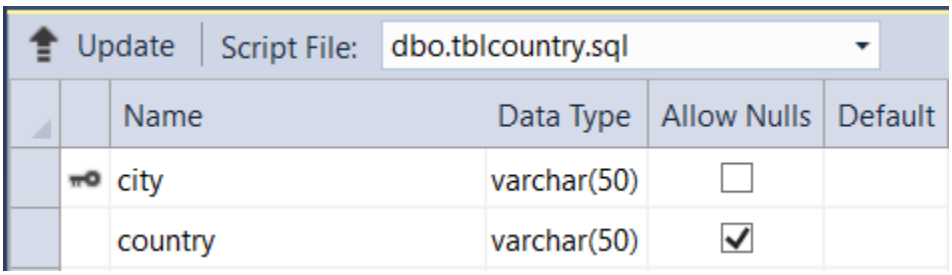
	challenge_name	varchar(50)	☑	
	ch_host	varchar(50)	☑	
	start_date	datetime	☑	
	end_date	datetime	☑	
	ch_time	varchar(50)	☑	

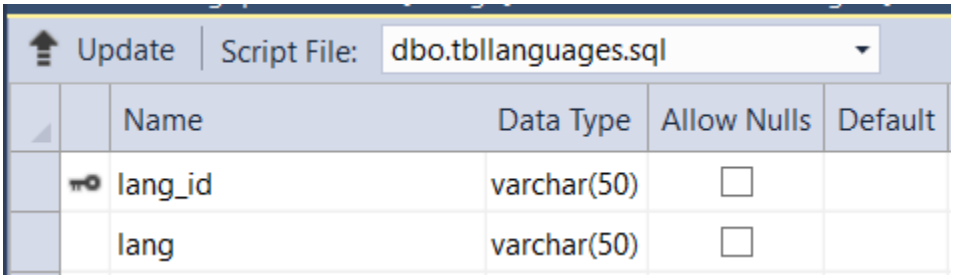
tblcountry



Update | Script File: dbo.tblcountry.sql

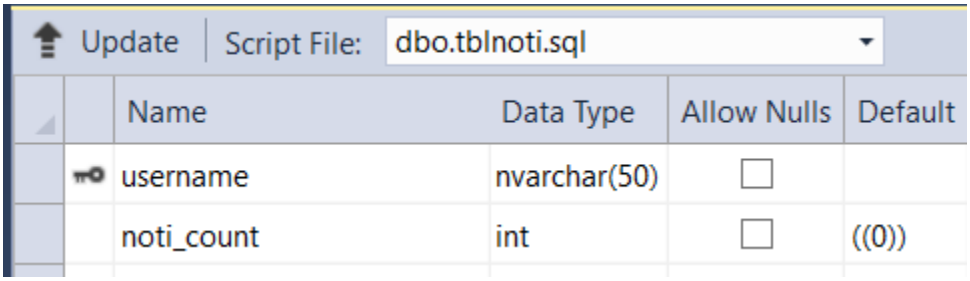
	Name	Data Type	Allow Nulls	Default
🔑	city	varchar(50)	☐	
	country	varchar(50)	☑	

Tbllanguages



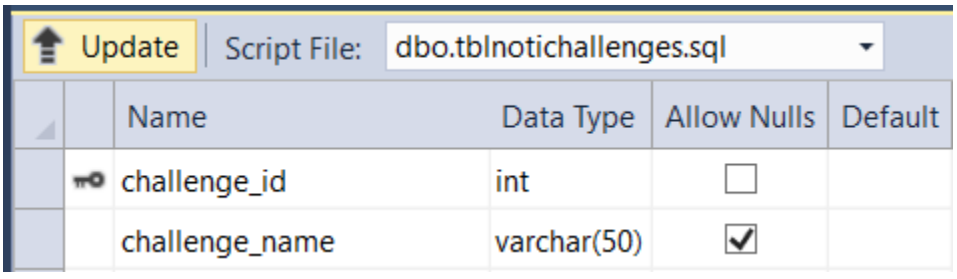
Name	Data Type	Allow Nulls	Default
lang_id	varchar(50)	☐	
lang	varchar(50)	☐	

Tblnoti



Name	Data Type	Allow Nulls	Default
username	nvarchar(50)	☐	
noti_count	int	☐	((0))

Tblnotichallenges



Name	Data Type	Allow Nulls	Default
challenge_id	int	☐	
challenge_name	varchar(50)	☑	

Tblorg

Update | Script File: dbo.tblorg.sql

Name	Data Type	Allow Nulls	Default
org_username	nvarchar(50)	☐	
org_name	nvarchar(50)	☑	
org_password	nvarchar(50)	☑	
city	varchar(50)	☑	
doj	date	☑	

Tbltopic

Update | Script File: dbo.tbltopic.sql

Name	Data Type	Allow Nulls	Default
topic	varchar(50)	☐	
subtopic	varchar(50)	☐	

Tbluserpro

Update | Script File: dbo.tbluserpro.sql

Name	Data Type	Allow Nulls	Default
username	nvarchar(50)	☐	
project_name	nvarchar(50)	☐	
project_details	nvarchar(MAX)	☑	

Tbluserinfo

Update | Script File: dbo.tbluserinfo.sql

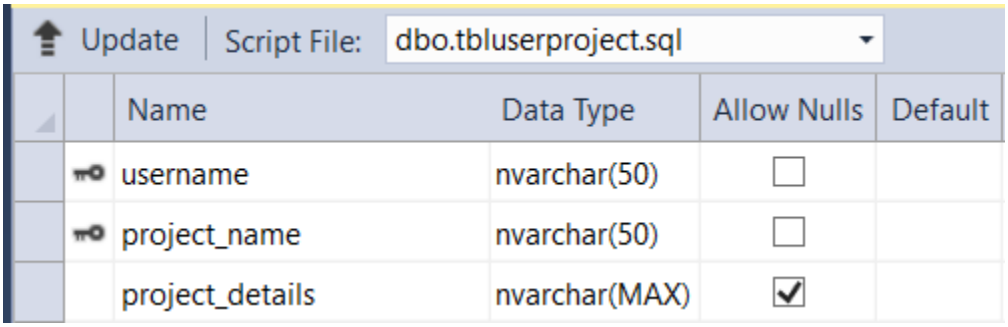
	Name	Data Type	Allow Nulls	Default
🔑	username	nvarchar(50)	☐	
	password	nvarchar(MAX)	☐	
	full_name	nvarchar(50)	☐	
	dob	date	☐	
	doj	date	☑	
	profession	varchar(50)	☑	
	city	varchar(50)	☑	
	img_id	int	☑	
	college	varchar(MAX)	☑	
	mobileno	nvarchar(10)	☑	
	languages	nvarchar(MAX)	☑	
	slang	nvarchar(MAX)	☑	
	platform	nvarchar(MAX)	☑	
	links	nvarchar(MAX)	☑	
	toolslib	nvarchar(MAX)	☑	
	data_base	nvarchar(MAX)	☑	

Tblproblemset

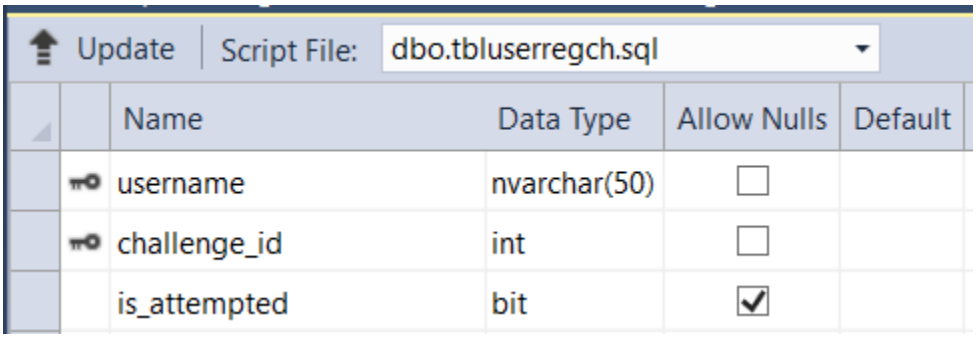
Update | Script File: dbo.tblproblemset.sql*

Name	Data Type	Allow Nulls	Default
prob_id	int	☐	
prob_name	varchar(50)	☐	
is_rated	bit	☑	
problem_desc	nvarchar(MAX)	☐	
subtopic	varchar(50)	☑	
compile_input	nvarchar(MAX)	☐	
compile_output	nvarchar(MAX)	☐	
input1	nvarchar(MAX)	☐	
output1	nvarchar(MAX)	☐	
input2	nvarchar(MAX)	☑	
output2	nvarchar(MAX)	☑	
input3	nvarchar(MAX)	☑	
output3	nvarchar(MAX)	☑	
input4	nvarchar(MAX)	☑	
output4	nvarchar(MAX)	☑	
input5	nvarchar(MAX)	☑	
output5	nvarchar(MAX)	☑	

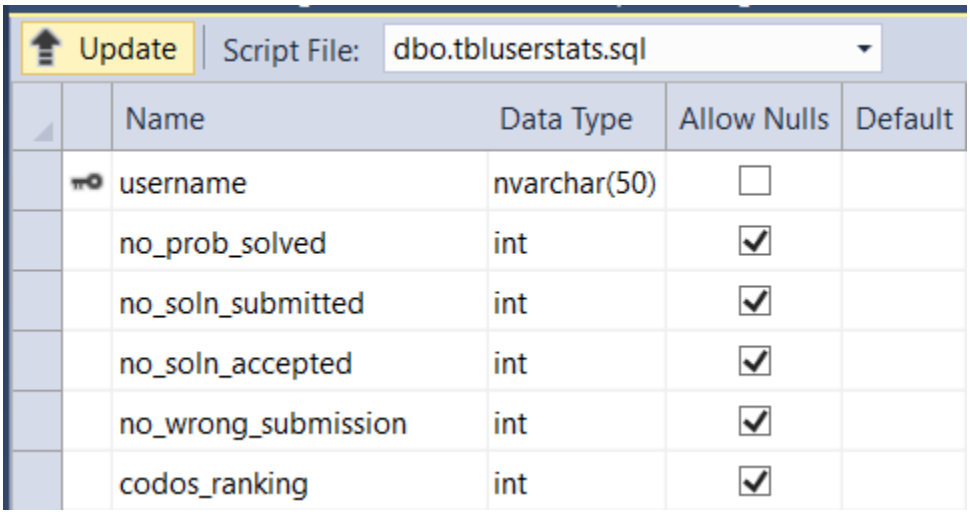
Tbluserproject



Tbluserregch



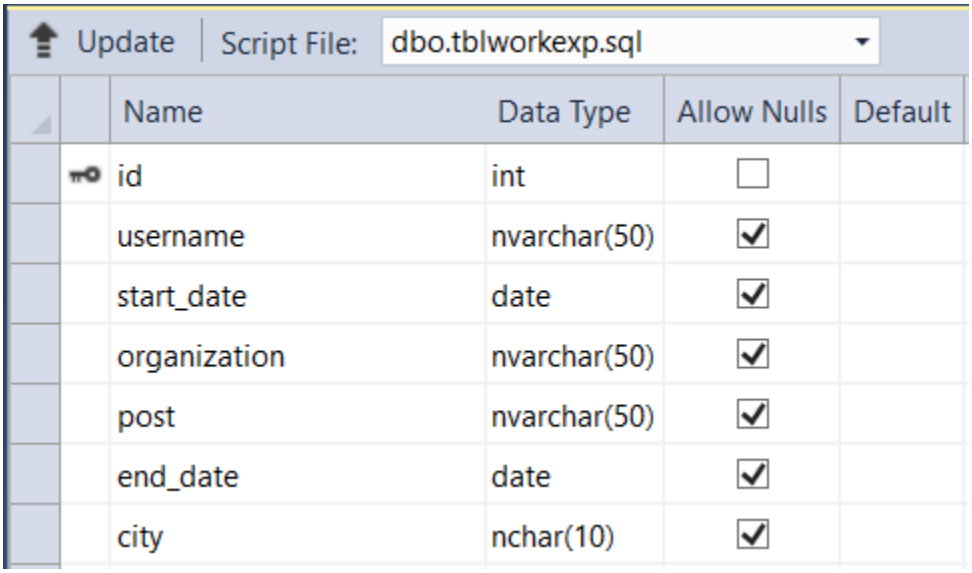
Tbluserstats



Update | Script File: dbo.tbluserstats.sql

Name	Data Type	Allow Nulls	Default
username	nvarchar(50)	☐	
no_prob_solved	int	☑	
no_soln_submitted	int	☑	
no_soln_accepted	int	☑	
no_wrong_submission	int	☑	
codos_ranking	int	☑	

Tblworkexp



Update | Script File: dbo.tblworkexp.sql

Name	Data Type	Allow Nulls	Default
id	int	☐	
username	nvarchar(50)	☑	
start_date	date	☑	
organization	nvarchar(50)	☑	
post	nvarchar(50)	☑	
end_date	date	☑	
city	nchar(10)	☑	

Triggers:

1. **Add notification when challenge is created**

```
GO
CREATE TRIGGER [dbo].[Trigger_tblchallenges]
   ON [dbo].[tblchallenges]
   FOR INSERT
   AS

   BEGIN
        declare @chid varchar(50);
        declare @chname varchar(50);

        select @chid = i.challenge_id from inserted i;
        select @chname = i.challenge_name from inserted i;

                insert into tblnotichallenges (challenge_id,challenge_name)
values(@chid,@chname);
                update tblnoti set noti_count=noti_count+1;
   END
```

2.Setting Notification to 0 when user is created.

```
GO
```

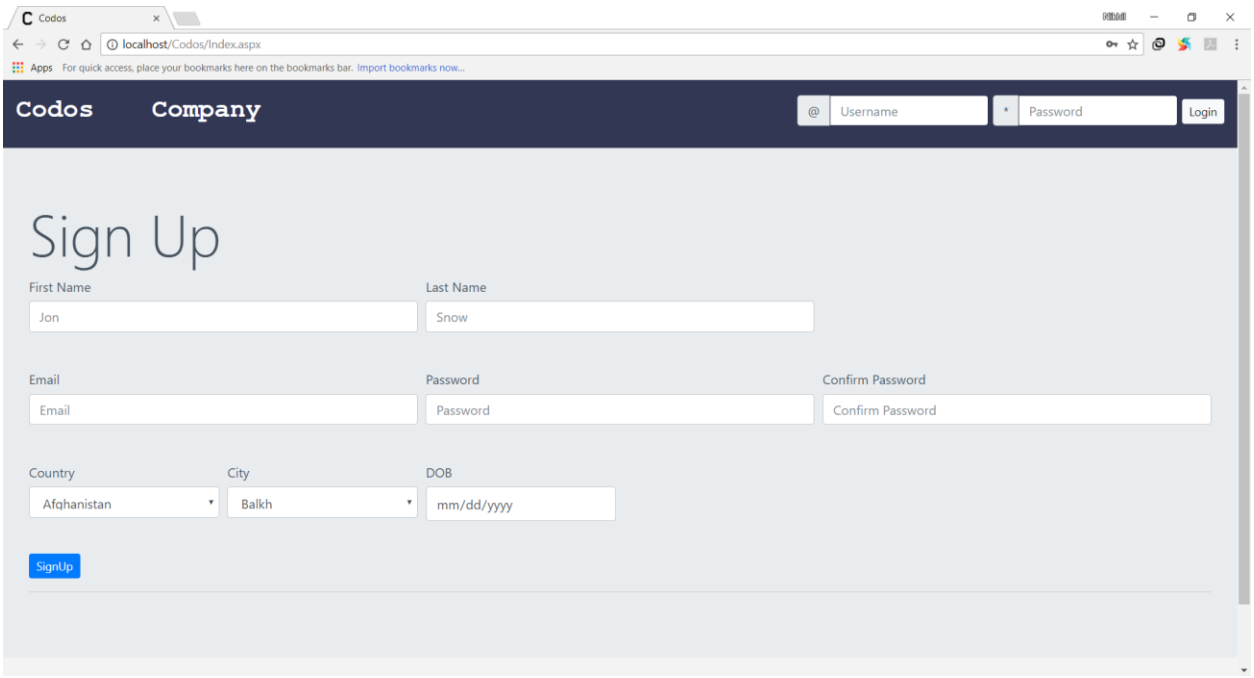
```
CREATE TRIGGER [dbo].[Trigger_tbluserinfo]
   ON [dbo].[tbluserinfo]
   FOR INSERT
   AS
   BEGIN
            declare @uname nvarchar(50);
            select @uname = i.username from inserted i;
            insert into tblnoti (username,noti_count) values(@uname,0);

     SET NoCount ON
   END
```

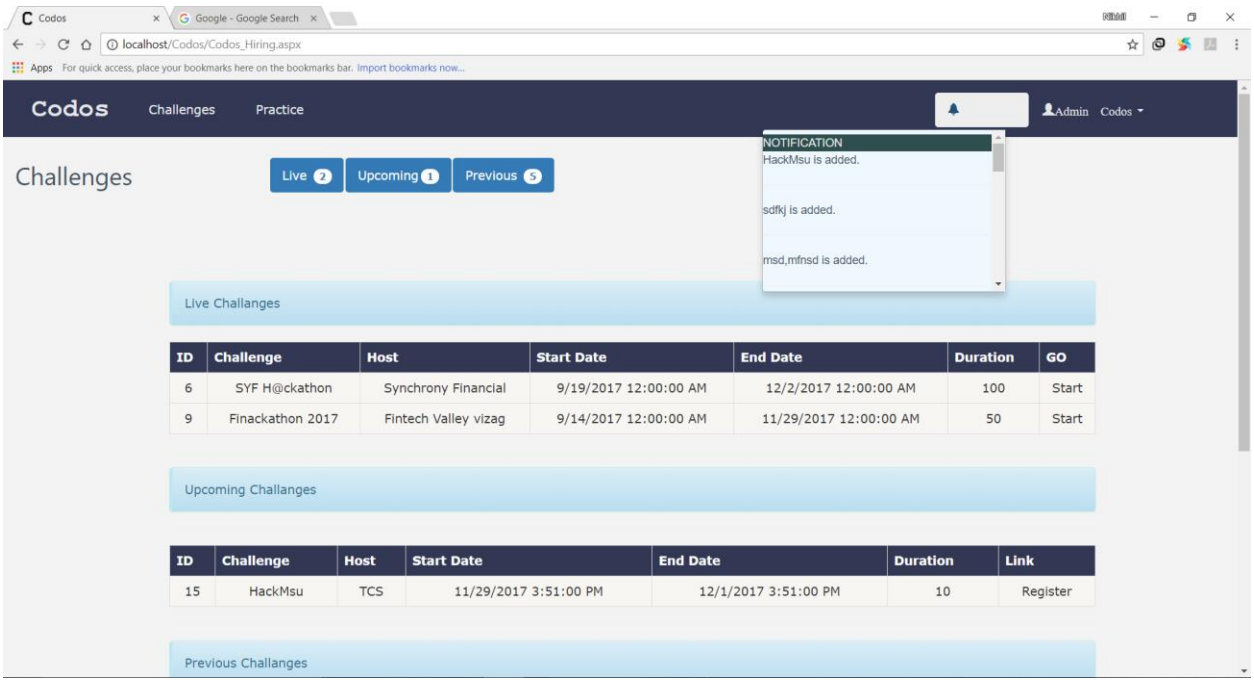
(IX)

SCREENSHOTS

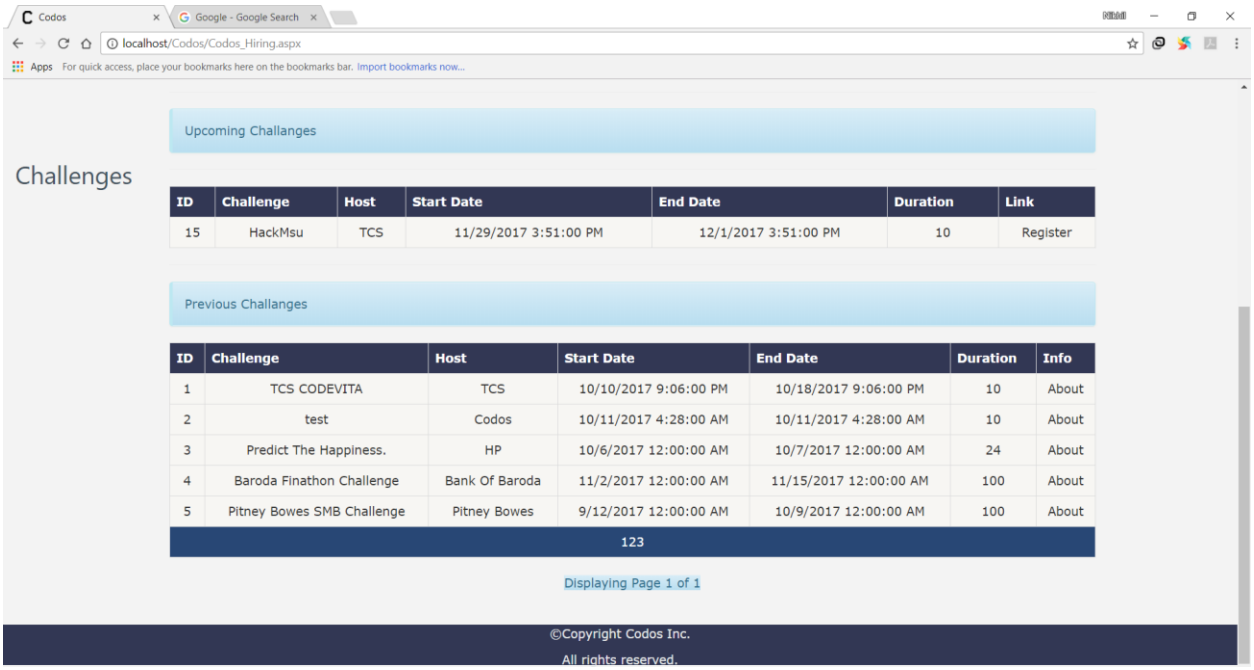
1. User Login



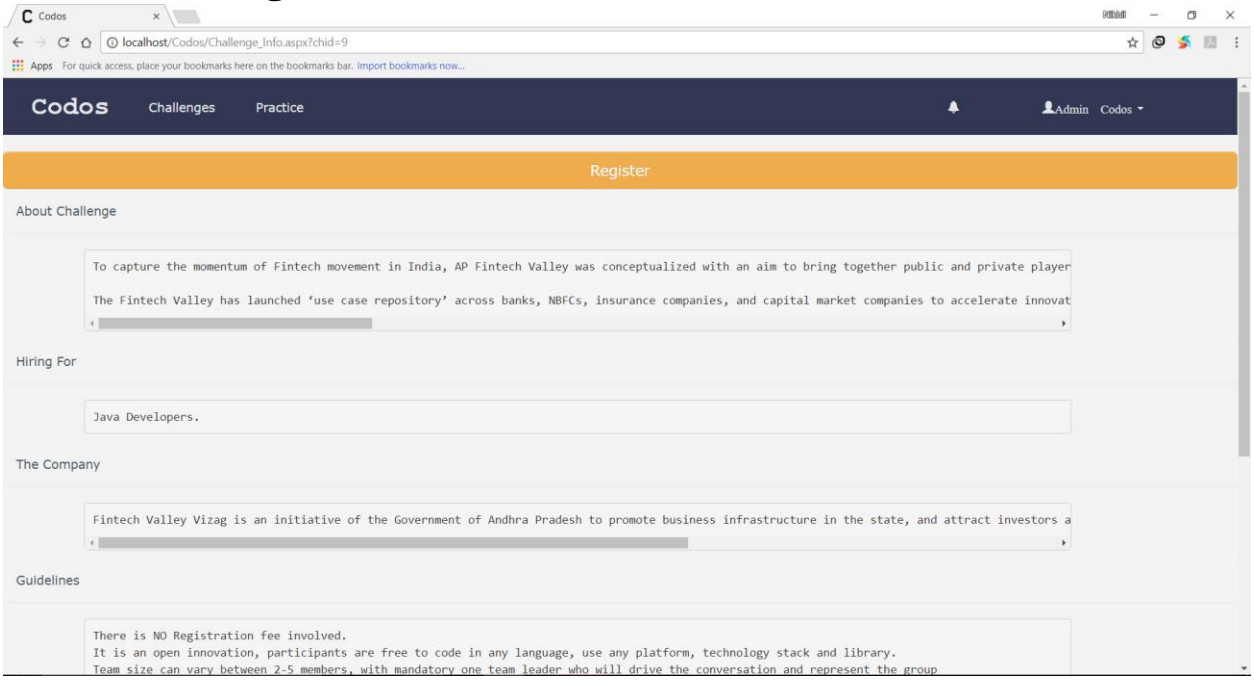
2. Challenges



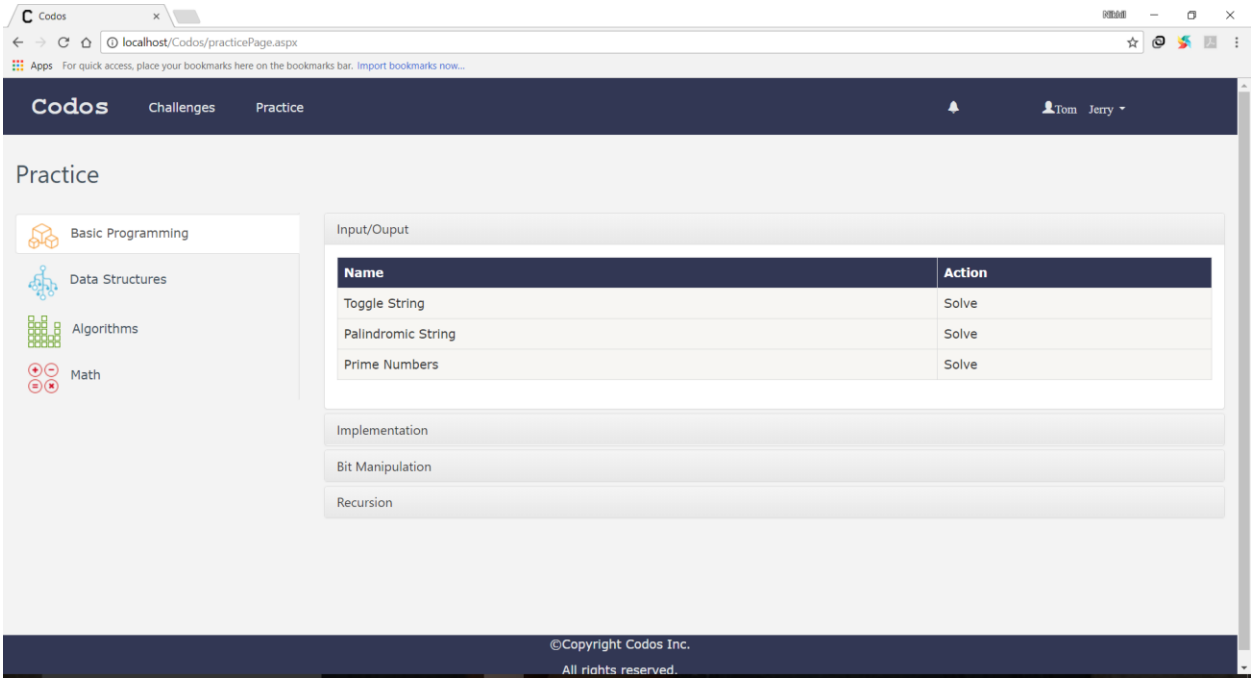
3. Challenges



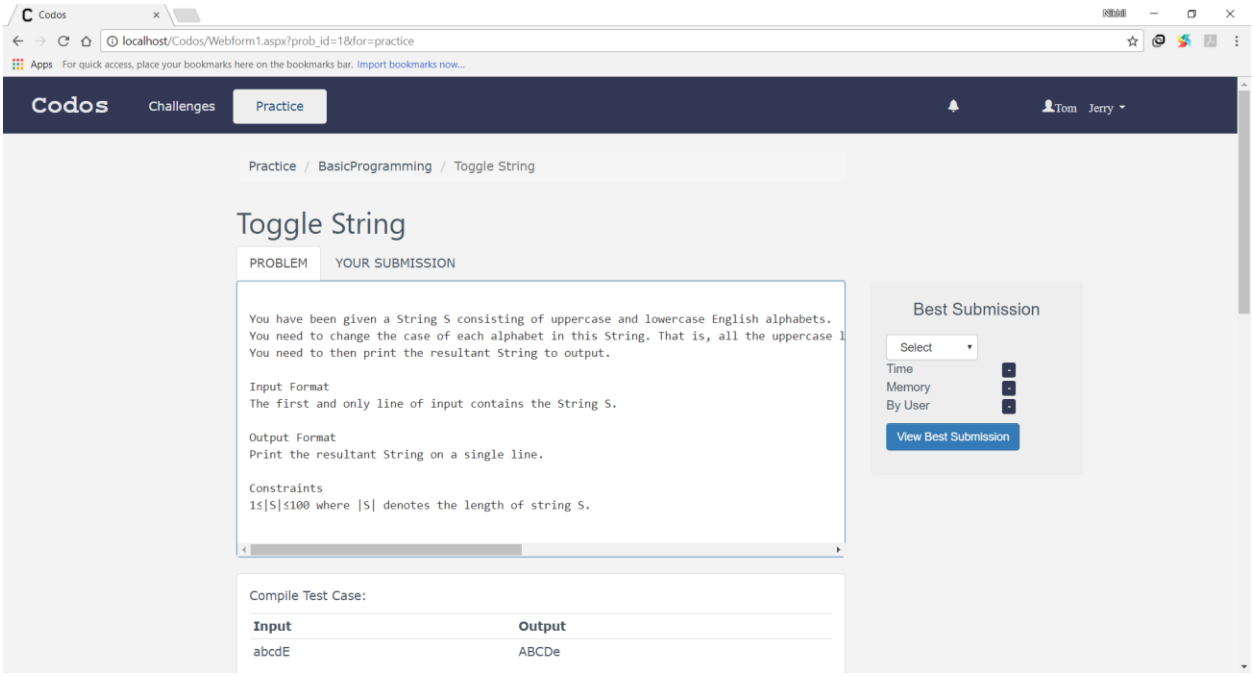
4. About Challenge



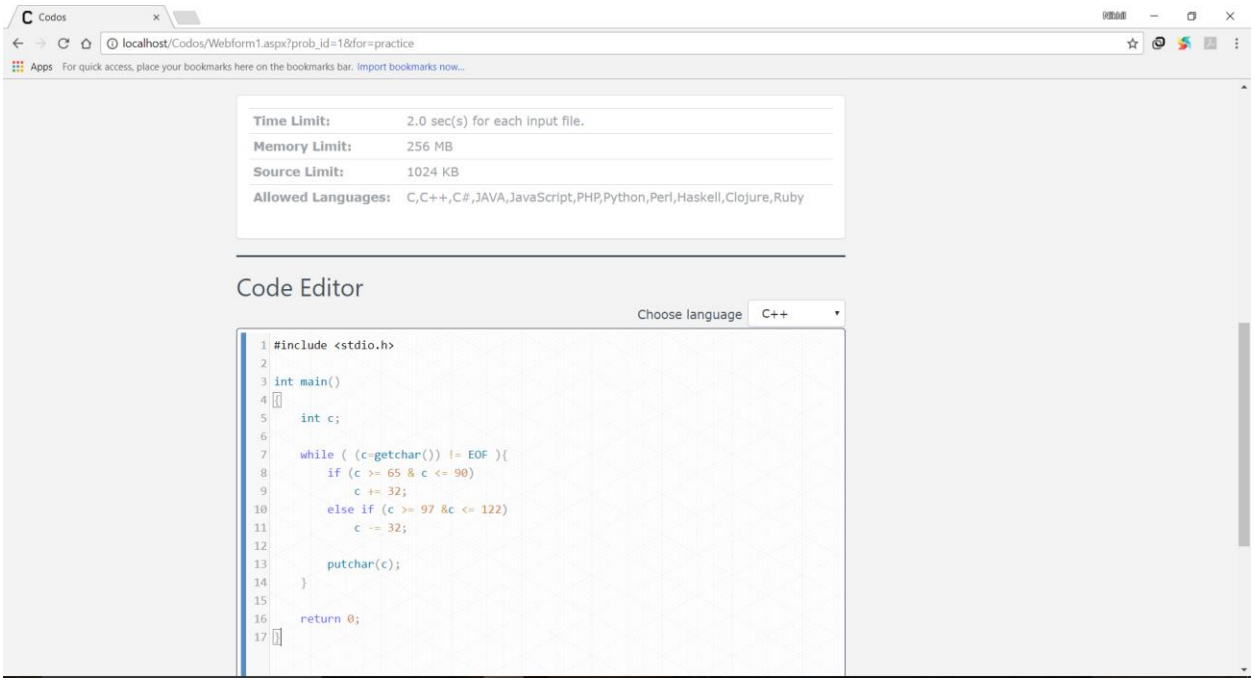
5. Practice



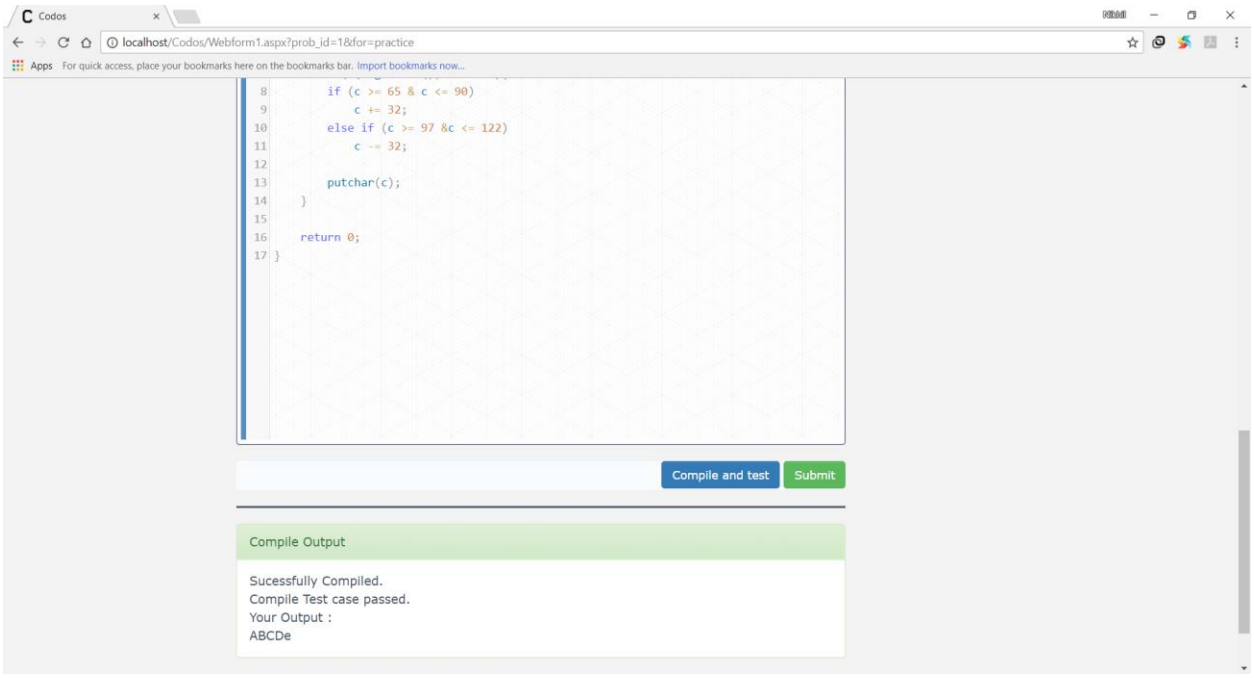
6. Code Editor and Problem Explorer



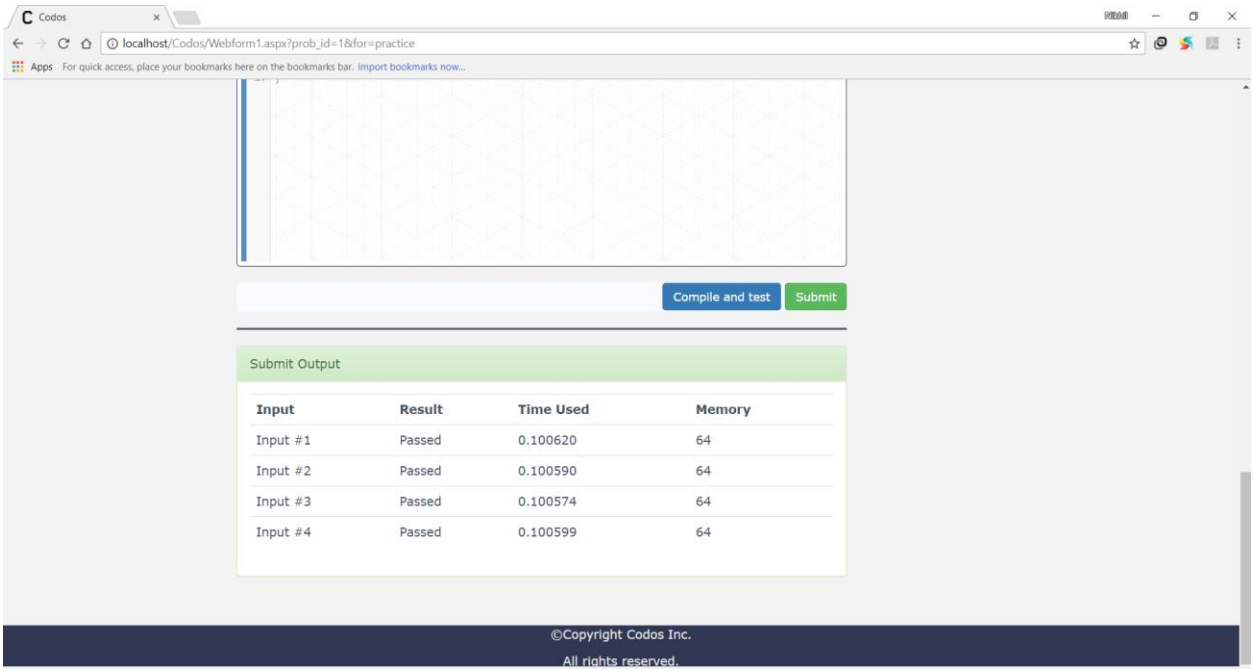
7. Code Editor



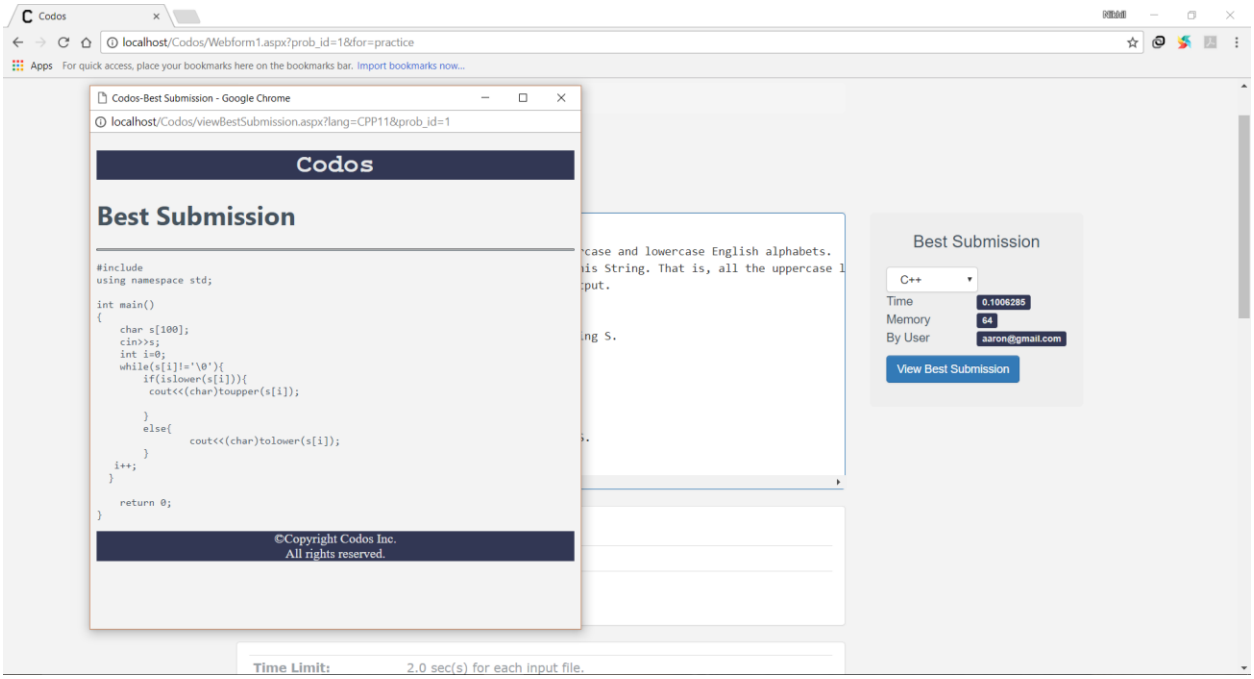
8. Compile



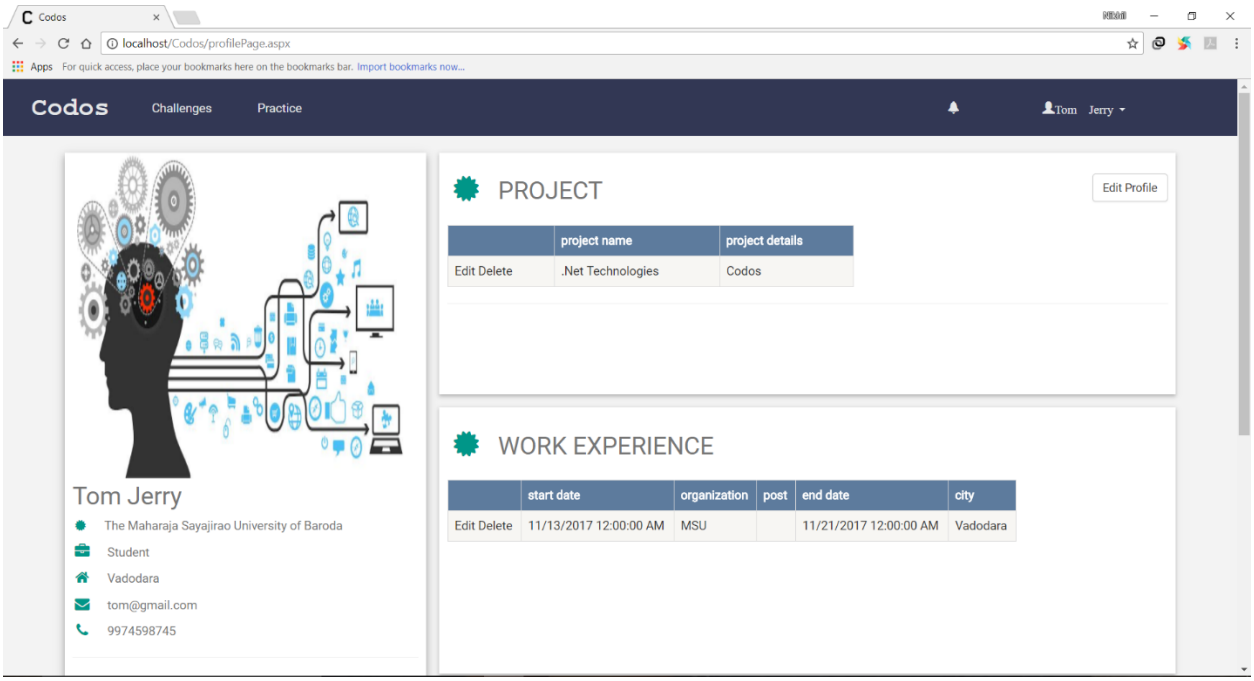
9. Submit



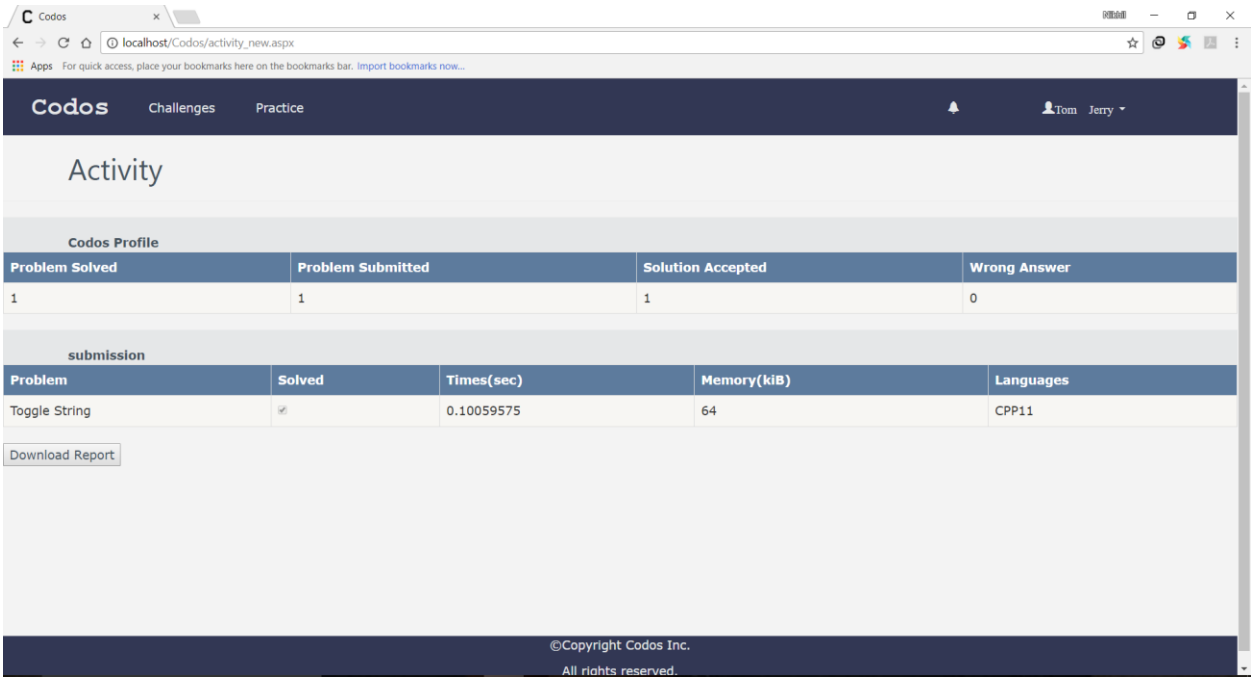
10. Best Submission



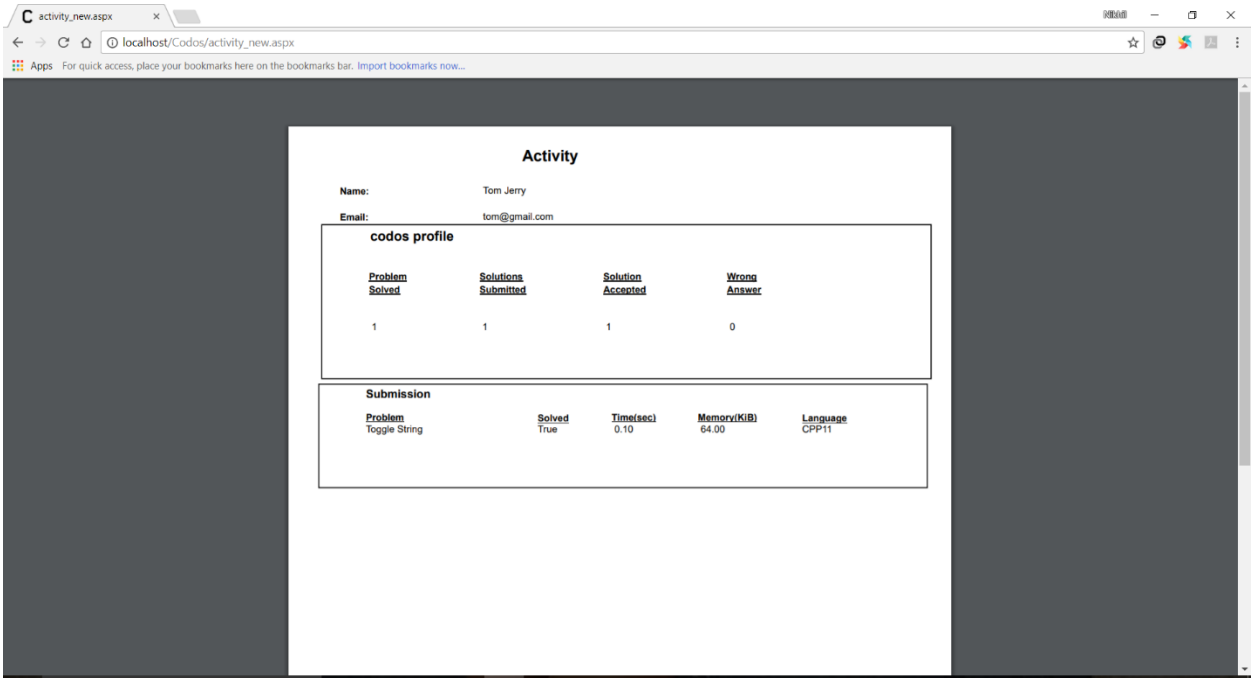
11. Profile



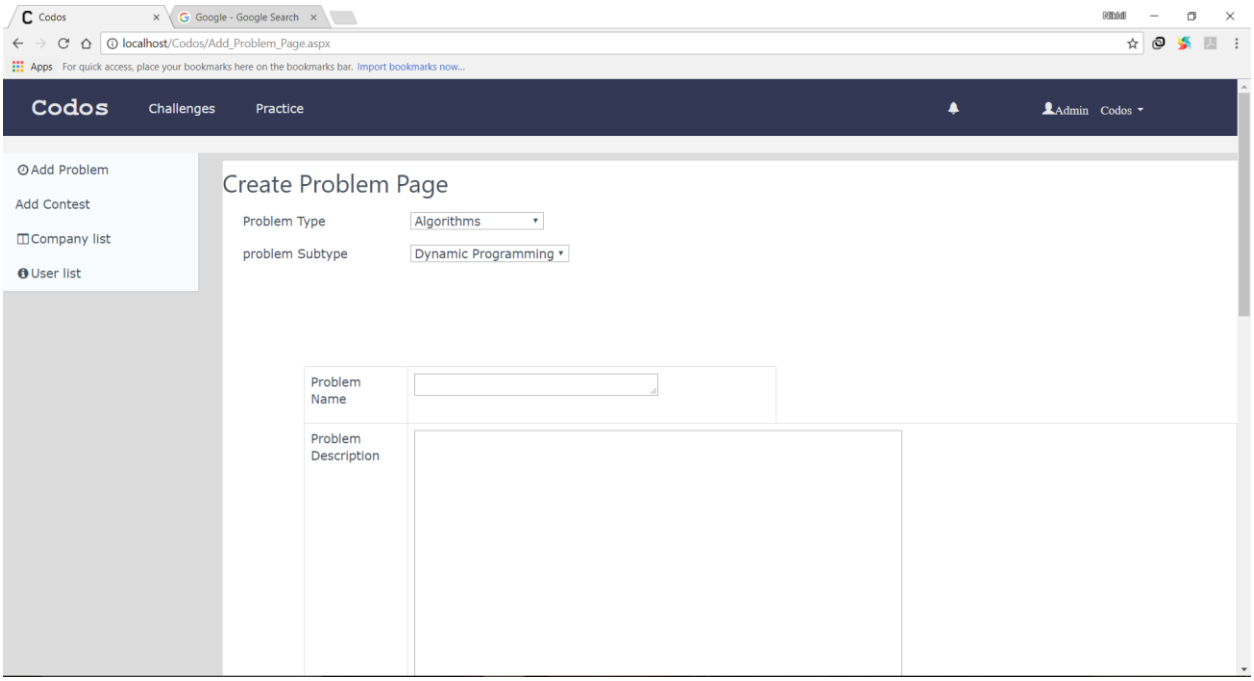
12. Activity



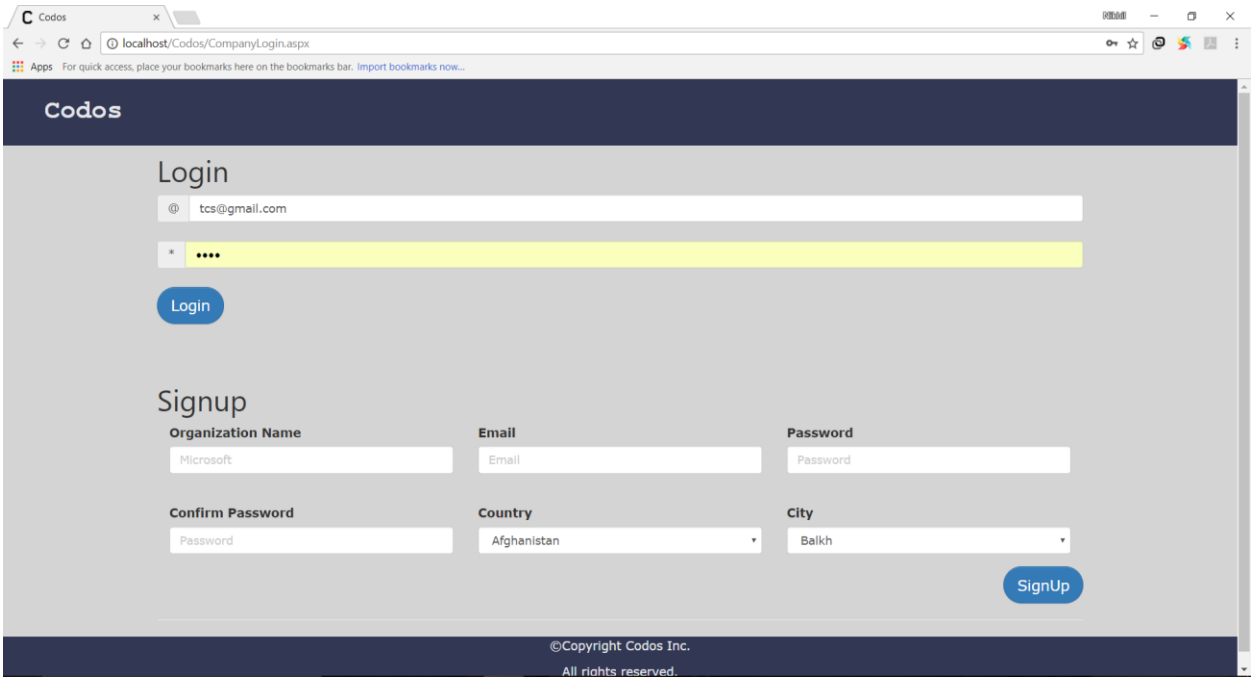
13. Crystal Report



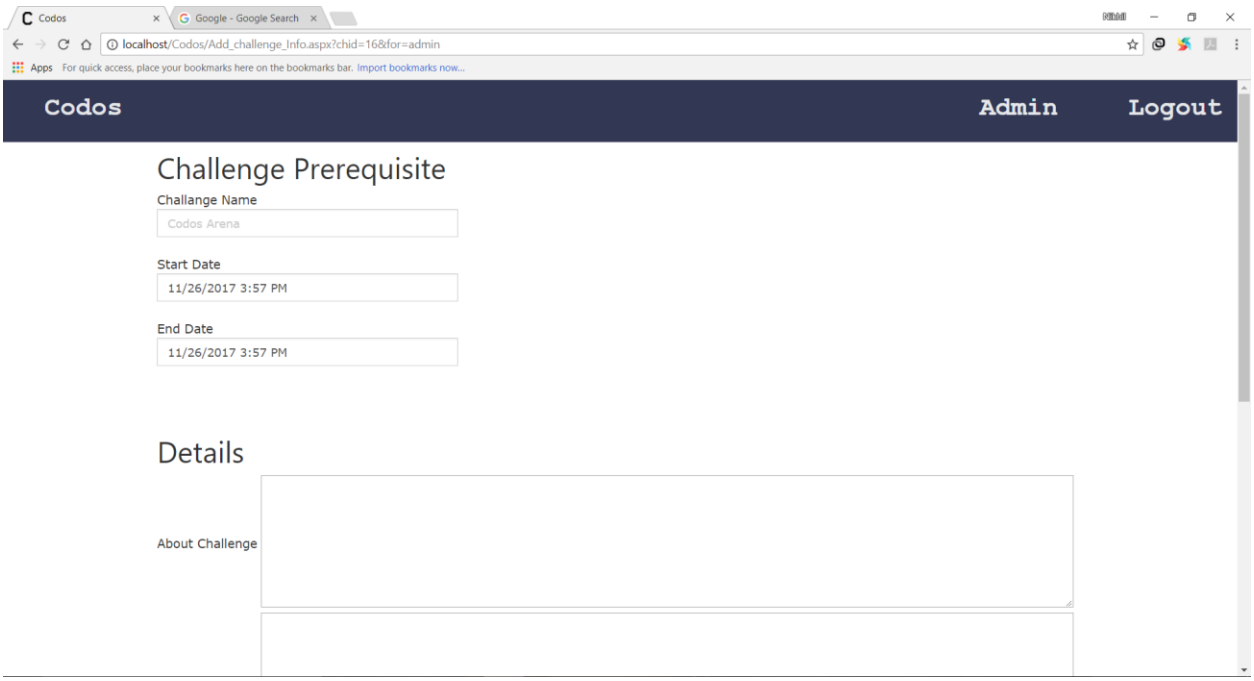
14. Admin Functionalities



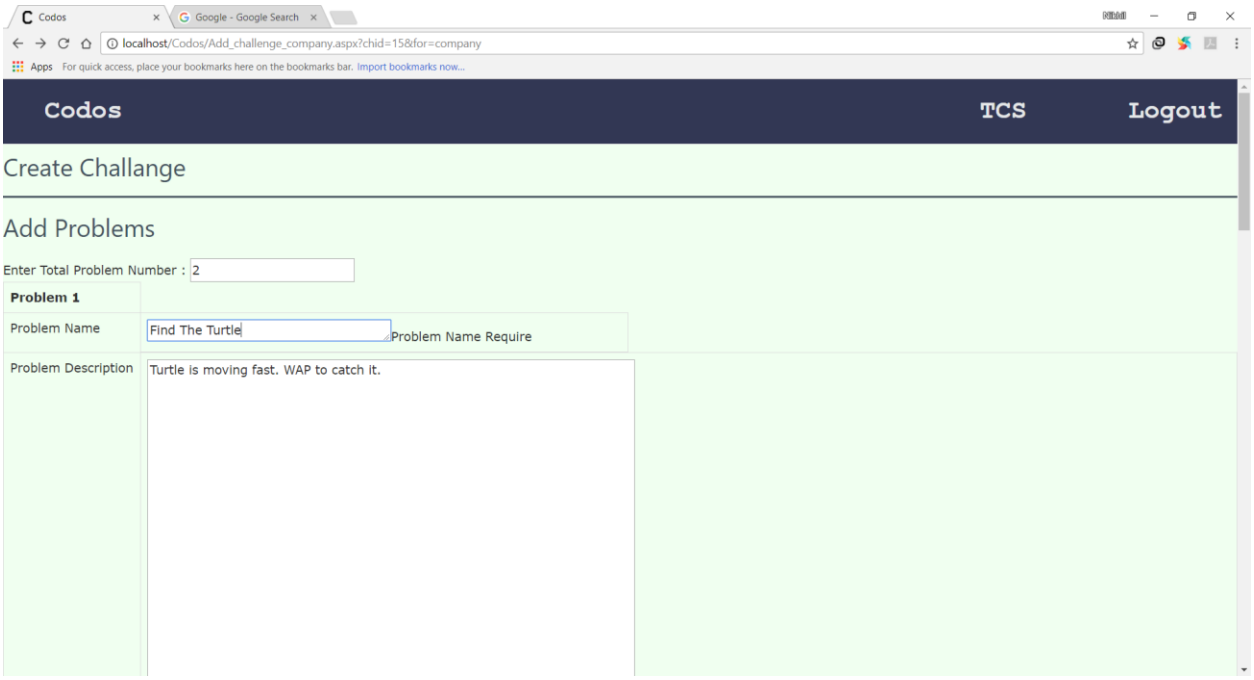
15. Company Login



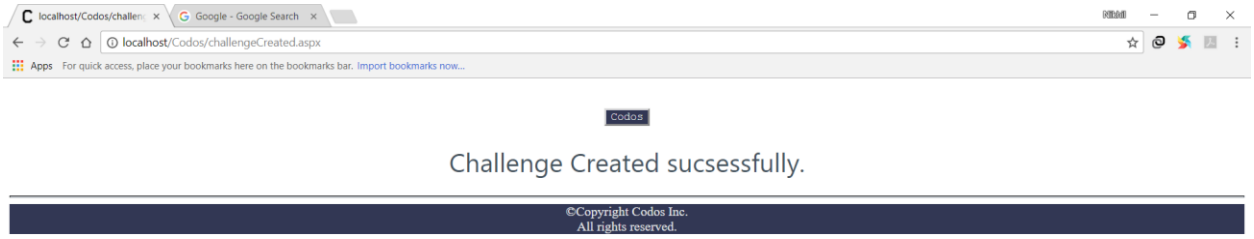
16. Add Challenge



17. Add Problems To Challenge



18. Successful Challenge Publish



(X)

FUTURE ENHANCEMENTS

1. Recruiter Solution: Video Conferencing between recruiter and aspirers.
2. Statistical Representations of user performance and their skillset.
3. Chat bot for FAQ's and manipulative queries related to computer science.
4. Resume Upload.

(XI)

BIBLIOGRAPHY

https://www.hackerearth.com/

https://www.hackerrank.com/

http://www.c-sharpcorner.com/