G. L. A. UNIVERSITY, MATHURA, U. P.

Institute of Engineering & Technology

MINI PROJECT-II

(2020-21)

Project Synopsis: CodeGrip

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DECLARATION

We hereby declare that the work which is being presented in the Mini project **"Code Grid"**, submitted by us to **Department of Computer Engineering and Applications, GLA University, Mathura** - 281006 in partial fulfillment of the requirements for Mini project viva voce, is an authentic record of our own work carried under the guidance of our supervisor "Mr. Akash Kumar Chaudhary". I further declare that the work reported in this project has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this university or any other institute or university.

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Course: B. TECH CSE, 3rd yr.

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INTRODUCTION:

Proposed **CodeGrip** is a platform for learning Competitive Programming virtually, while practicing to code simultaneously. Programmers who want to learn Competitive Programming from the basic to high level, can visit the web portal and find extremely useful tutorials. While landing the web page, an introduction video of 'What is Competitive Programming' can be seen by the viewers. We have the search logo to search the topics programmers wants to learn. Proposed web portal also have the tutorial videos too along with the study material for every topic.

CodeGrip also have its own compiler. As we know, learning without practicing is of no use. The compiler will compile the code in various languages such as C++, Java, Python etc. A lot of big companies like Google, Facebook. Microsoft, Amazon hires through competitive programming so to get into these companies then we really need to have strong hands in competitive programming. It doesn't matter that someone is a newbie programmer or have written some code before, we will tell some steps, approaches, and tips to prepare themselves for competitive programming.

The tutorial videos & written material will help the students to learn competitive programming in a best manner, and by practicing their hands on in any of their favorite programming language, all these things will make our efforts of making this website successful.

Problem Statement:

- What is Competitive Programming and How to Prepare for It?
- Teaching the Concept of Time and Space Complexity.
- Choosing the Programming Language.
- Explaining the Fundamentals of Data Structures and Algorithms.
- Take the Challenge and Solve Coding Problems.
- Motivate students for Practicing and Do it Regularly.

Reason for selecting the topic:

The reason or motivation behind selecting this project is to teach & help others who wish to become a master in competitive programming. Many of times it happens that people don't get the tutorials given on youtube or they don't easily understand or get comfortable with the way of teaching. Some likes to study from watching videos, some likes to learn by reading tutorials or books & some likes side by side practicing to code. Therefore, we are providing everything including reading tutorials, tutorial videos & a compiler too to practice your hands on!

Another reason is that a lot of big companies like Google, Facebook. Microsoft, Amazon hires through competitive programming so to get into these companies then we really need to have strong hands in competitive programming. It doesn't matter that someone is a newbie programmer or have written some code before, we will tell some steps, approaches, and tips to prepare themselves for competitive programming.

Objective:

If you are a programmer you might have understood the deep meaning of these lines quoted by *Steve Jobs* and you might have also experienced that even after shutting your computer you keep on thinking about programming stuff or code you have written in your project. Once you enter in programming you just don't learn how to code but you also learn the *"art of thinking"*, by breaking your code into smaller chunks and then using your *logic-based creativity* to solve a problem from different angles.

Programming is fun, programming is an exercise for your brain, programming is a mental sport and when this sport is held over the internet involving sport programmer as a contestant then it is called ***Competitive Programming***.

It doesn't matter that someone is a newbie programmer or have written some code before, we will tell some steps, approaches, and tips to prepare themselves for competitive programming.

We will provide a compiler to practice your hands on in programming & helps you to be a coding master!
The website will include tutorial videos including written material too. What else is needed to be a pro in coding!

System Requirements:

Supported Operating system:

Windows 10
Windows 8
Windows 7

Software Required:

- Visual Studio Code – It is a source code editor developed by Microsoft for Windows, linus and macOS.
- Chrome – It is a web browser.
- Technologies Implemented:
  - HTML - For user interface.
  - CSS - For making interfaces more attractive and stylish. This will help us with the layout control.
  - JavaScript - Gives web pages interactive elements that engage a user.
  - React js - React is a open source JavaScript library that is mostly used to build single pages user interfaces application. It is used to handle the view for the website and mobile apps. It is very important as it gives us the reusability of the UI component.
  - MongoDB – It is a document database with the scalability and flexibility that you want with the querying and indexing that you need.

Hardware Requirements:

- Processor: intel i5
- Operating System: Windows 10
- RAM: 8GB
- Hardware Devices: Computer System
- Hard Disk**:** 256 GB
- Internet Connection

What Contributions would the project make and where?

- Individuals who visit the website will Learn & have experience in programming.
- The more recognition will website gain, the more people will get the benefit.
- Easy availability of everything including written material, tutorial videos & compiler.
- Learning & practicing anywhere, anytime with just an Internet connection & a device.

Future Scope:

- A lot of big companies like Google, Facebook. Microsoft, Amazon hires through competitive programming so to get into these companies then we really need to have strong hands in competitive programming.

- Learners can learn from the website whenever & wherever they want to. They can watch tutorial videos of ours or can read the written material or practice their hands on the compiler we are providing.

- The website will prove to be very helpful in future, not just for those who are preparing for placements but also who are newbie programmers & doesn't have any idea of competitive programming.