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# Online Smartest Coding Community platform used by college students using Deep learning

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**Abstract -** *In today's world the education is a field which requires a lot of inventions. The uncertain rise in Covid-19 has affected the world adversely. No doubt the education sector has done a brilliant job but we are still finding effective solution for this field. So, we decided to apply Deep Learning algorithms for effective education system. We have studied applications of Deep Learning algorithms like, CNN, Onion Routing Algorithm for encryption, SVM. We will study application of these deep learning algorithm to build educational system for helping students. In our system the discussion forum like thing people can put their questions and that field specialist answers to their question.*

***Key Words*:** CNN, ONION ROUTING ALGORITHM, SVM, Deep Learning, Education.

## 1. INTRODUCTION

Nowadays world requires complete online education after sudden arise of Covid-19 pandemic. So world realizes that available offline education system is not enough. So we decided to apply our knowledge about deep learning to do the best in education sector.

We are going to develop the online smartest coding community platform which helps the college juniors. To take help from their seniors in all the aspects like coding or development related stuffs based on question answering platform. Juniors can ask the doubts to seniors and seniors will arrange some short meeting to keep juniors updated about internship opportunities or job opportunities or any open source contribution.

THE CODE MATE will help competitive programmers to keep track of upcoming contests on a single place of all platforms like codechef, codeforces, leetcode, SPOJ, hackerrank, etc rather than opening each platform individually.

## 2. RELATED WORK

By using CNN Yashwardhan Sharma and team to do the quantitative and qualitative analysis performed on user content to generate result in CQA system

A bloom filter algorithm focuses on how efficiently space can be used in a data structure. This research was given by VIT University, Vellore.

M. G., Syverson, P. F., & Goldschlag studied ONION ROUTING Algorithm: Onion routing algorithm is a technique used for protecting the privacy of a user.

By using Visual Question Answering using Deep Learning Shiv Ram Dube and team uses various datasets and compared with deep learning models to find the best model which answers question.

## 3. OBJECTIVES

The aim of project are as follows

1. To develop the college's smartest coding community to lift all the students in the right direction
2. To build the platform called "THE CODE MATE" which helps the competitive programmers to
get updated with upcoming coding contests and attend them without missing
3. Help students to find their interest that whether they are interested in competitive programming
or development

## 4. ALGORITHMIC SURVEY

### 4. 1 Support Vector Machine

Support vector machine is a popular algorithm which can be used for both classification and regression analysis . The goal of the algorithm is to find a line or (n-1) dimension hyper-plane it separates the 2 classes present in the n-dimensional space

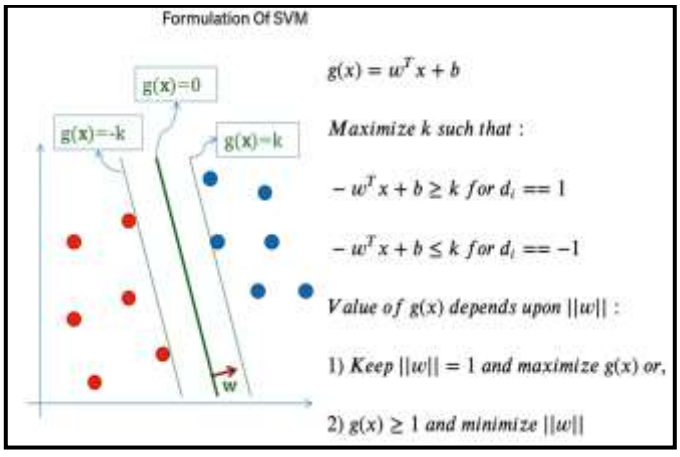


**Fig -1:** Formulation of SVM

Types of SVM algorithm -

- Linear SVM**:** Linear SVM is used for separating linear data which means if a dataset can be identified into two classes it is referred to as split and clear data, and the partition used is called the Linear SVM partition.
- Non-linear SVM**:** Non-Linear SVM is used to separate non-linear data, it means that if the database cannot be separated using a straight line, that data is known as non-linear data and the split used is known as Non-linear SVM classifier.

SVM chooses the extreme points that help in drawing the hyper plane. Such a cases are called as support vectors therefore algorithm is called as Support Vector Machine. Below diagram is classified into 2 types using hyper plane.

Graphical Representation of SVM-

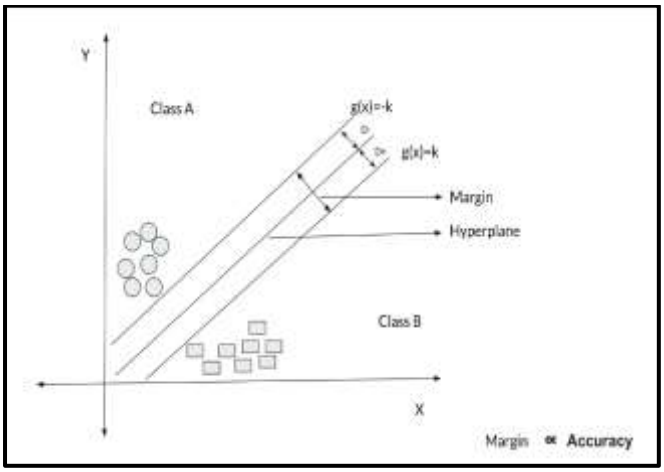


**Fig -2:** Graphical Representation of SVM

**4.2 Convolutional Neural Network (CNN)**

Convolutional Neural Network (CNN) is most commonly applied to visual imagery. In accordance with the weight we have shared the architecture of convolution kernels that filtrates an sliding along input features and provides the translation of similar type of responses. The CNN consists of various layers which are designed to receive and process pixel data.

CNN is used in

1. Image and Video Recognition
2. Image classification
3. Medical Image Processing
4. Natural Language Processing

**Working of CNN**

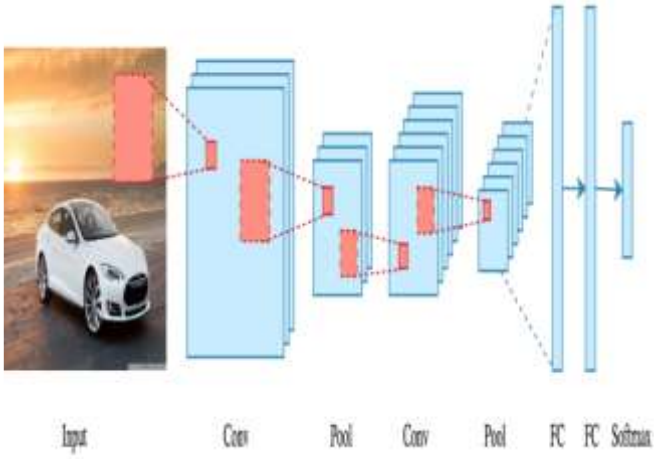


**Fig -3** Working of CNN

Above figure shows working of CNN. The components of CNN include,

1. Conv- It is used to extract part of image.
2. Pool- It is used to add the points which are extracted as feature to the matrices.
3. Softmax- It is process of generating the final pattern.

**Use of matrices in CNN**

The image to be processed in divided into the grids of any size according to programmer. The grids are mapped to matrices. Three matrices are used for three colours Red, Green and Blue. If the selected grid has red colour then 1 is added to respective red colour matrix. The final matrix is calculated using mathematical formulae for Matrix operations.

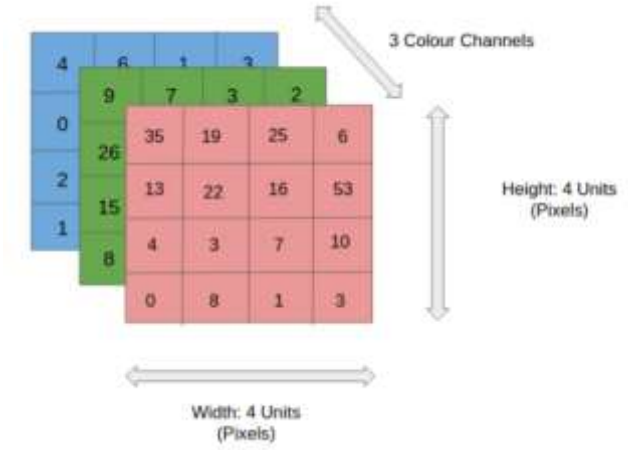


**Fig 4. 3 4 X 4 matrices which represent Red, Green and Blue**

## 4.3 Onion Routing

Onion routing is a technique of anonymous form communication through a computer network. In an onion routing, messages are enclosed within encryption layers, similar to onion layers.

The connection is established between different nodes which means that hops to connect from one server to another and when it reaches the last server. In this region the

server we wanted to contact and will process our request and use the required webpage send back to us using the same network of nodes.

Now you have to think about why it is called the onion router. This is because the message we send and the responses we receive must be encrypted with various keys, and a unique encryption key for all different hop or server visits.

The client has access to all the buttons but the servers have access only to the some encryption/decryption on that server.

As this process combines your message under layers of encryption that should be strike out. at each hop different onion therefore it is termed an onion router.

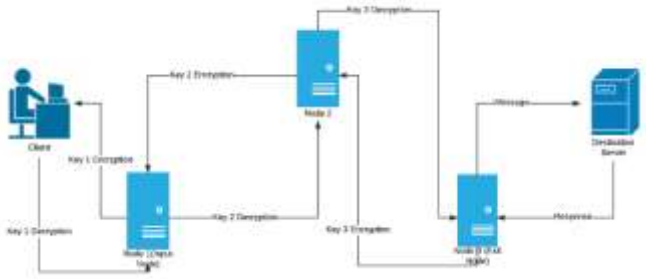

**Fig 5** *Onion Routing Circuit*

## 5. PROPOSED SYSTEM

Generally freshers don't know the things that how to start the coding journey, Initially even they don't know that which programming language to choose or which programming language is best suited for learning data structures and algorithms. They don't know if competitive programming like things exits or not. So they waste their initial one and half year in these kind of stuffs.

So in our platform students will log in with the login credentials

There will be three sections

1. Junior's community
2. Seniors community

Now juniors can ask their doubts in that forum and Seniors will answer to that query and can help to them. If any opportunity comes then they can share with their juniors like internship opportunities or job opportunities or any open source contribution.

In that forum we can like the asked question or we can like the answer and we can comment on it. So that most liked or most appropriate answer will be visible to the people

### 6. Coding Buddy platform

Now coming to competitive programming contest. So there are different coding platforms like Codechef, Codeforces, Leetcode, Hackerrank, HackerEarth, Atcoder. These platforms organizes weekly coding competitions. Students give contests on different platforms so they may forget to attend that contest

So instead of checking which contest is organized when by check all platforms, will not be feasible so we can develop the platform which tells the schedule for upcoming contests and live contest on a single place. So by clicking on that they can directly land to that platform and attend the contest without forgetting it.

We will add one extra feature of google calendar that they can add that event to calendar and it will notify them before 15 - 20 minutes. For that we will make an API call of that platform to access contest related data We will add all social media handles links like (Linked In, GitHub, Stack OverFlow) at end of this platform of coding buddy.

Then we will include the leaderboard of students according to their ratings (4 star , 5 star 7 star coders) on different paltform which will help to students for their healthy competition among them and they can grow together.

### 7. Block Diagram of System :

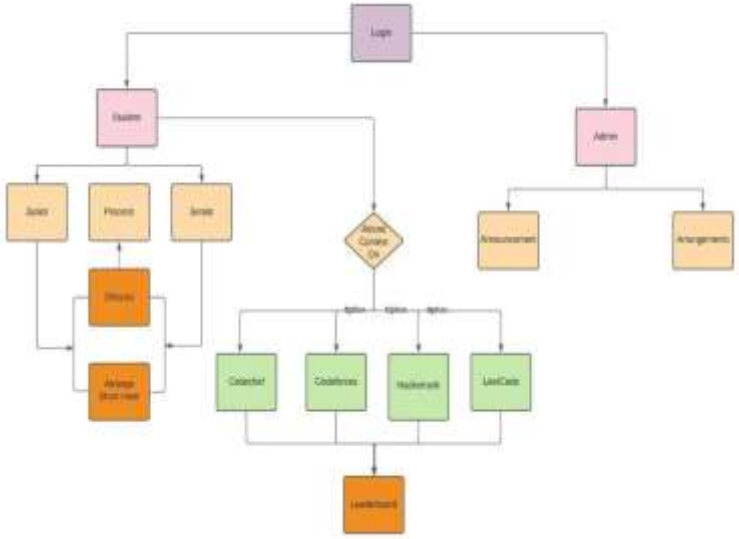

**Fig 6. Block Diagram of System**

### 8. Conclusion and Future Scope:

To build online smartest coding community platform to develop a good coding culture in college and to help the college juniors by their seniors about new opportunities like internship , job opportunities, open source contributions, hackathons and many more.

To build the platform called “THE CODE MATE” which helps the competitive programmers to get updated with upcoming coding contests and attend them without missing which helps the competitive programmers to get updated with upcoming coding contests and attend them without missing .In future we will definitely try to include the leaderboard of students according to their ratings (4 star , 5 star 7 star coders) on different paltform which will help to students for their healthy competition among them and they can grow together.

Using this new modern system, the better progress in education sector can be managed. System helps to analyze the student progress.

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