

**To Make A Significant Improve In Software Industry By Enhancement of  
Competitive Programming**

One Stop HUB for Coders

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**Abstract** — This system relates to one such Q&A Forum. It can be seen as an educational directi. It provides users a platform to not only resolve their coding competitive problems but also to showcase their expertise in it. It is where the users, be students or teachers or beginners or programmers or anyone, can post their error prone or error containing code when they no further have a clue to resolve it. These posted codes with error or what we call it as 'competitive programming problems' here are visible to other users as well. Anyone who think they have a way to make this code error-free or a solution to the user's question and post their answers in form of comments below the questions. This will not only help the users to solve their problems but also improve their computational coding skills as the system improves the utility and performance of Q-A System for the technical domains.

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**Keywords** - Competitive programming problems, Q-A system, online coding system, Q-A community, Answer Ranking

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**I. INTRODUCTION**

The concept of Question-Answer (Q&A) Forum has recently become very popular and attracted a large number of users. It is an important source of information to not only the beginner coders but also the college or school students, teachers, professional programmers and many more. People find these forums very easy to access, which provide them with a large number of answers to each of their question without charging a penny. Q&A Forums is the new practice of a large community of programmers. It aims to reach out to coders while they are young and inculcate a culture of programming by allowing them to compare paradigm and approaches with a variety of programming languages. There is no limitation for users regarding the programming languages as the system is designed to provide solution for multiple programming languages such as C, C++, etc. The system is very user-friendly, easily accessible and for free. The users are free to use the system all their life long.

The questions and the answers will be visible to all the users worldwide, irrespective of whether they are registered users or not. But to post any question or answer, the user will be required to register oneself. Subsequently as the user registration process is completed and the user account is made, a user profile will be automatically generated. It will contain all the basic information that the user provided while registering their selves, in addition to various other fields which the user can fill or edit later on. The users can edit or update their profile anytime. The users, apart from posting questions and answers, can vote up or vote down for the most/least preferable or useful answer according to them. The total number of questions asked by the user, number of answers given by the user and number of votes on each of their answer will all be reflected in the user profile. The above mentioned three parameters will indicate the activeness of the user in the forum according to which their profiles will be ranked. Now the profile ranking can be extremely important as the system also facilitates the users to either get recruited or to recruit other people in their company, organization, institution, etc. The recruiters can visit various coder's profiles, assess the activeness and expertise of a particular user through profile ranking, questions asked, answers given or votes gained. Accordingly, they can then contact the suitable coder through the contact information provided by them. Hence, this will not only help the job seekers but also the job providers or creator.

**II. PURPOSE**

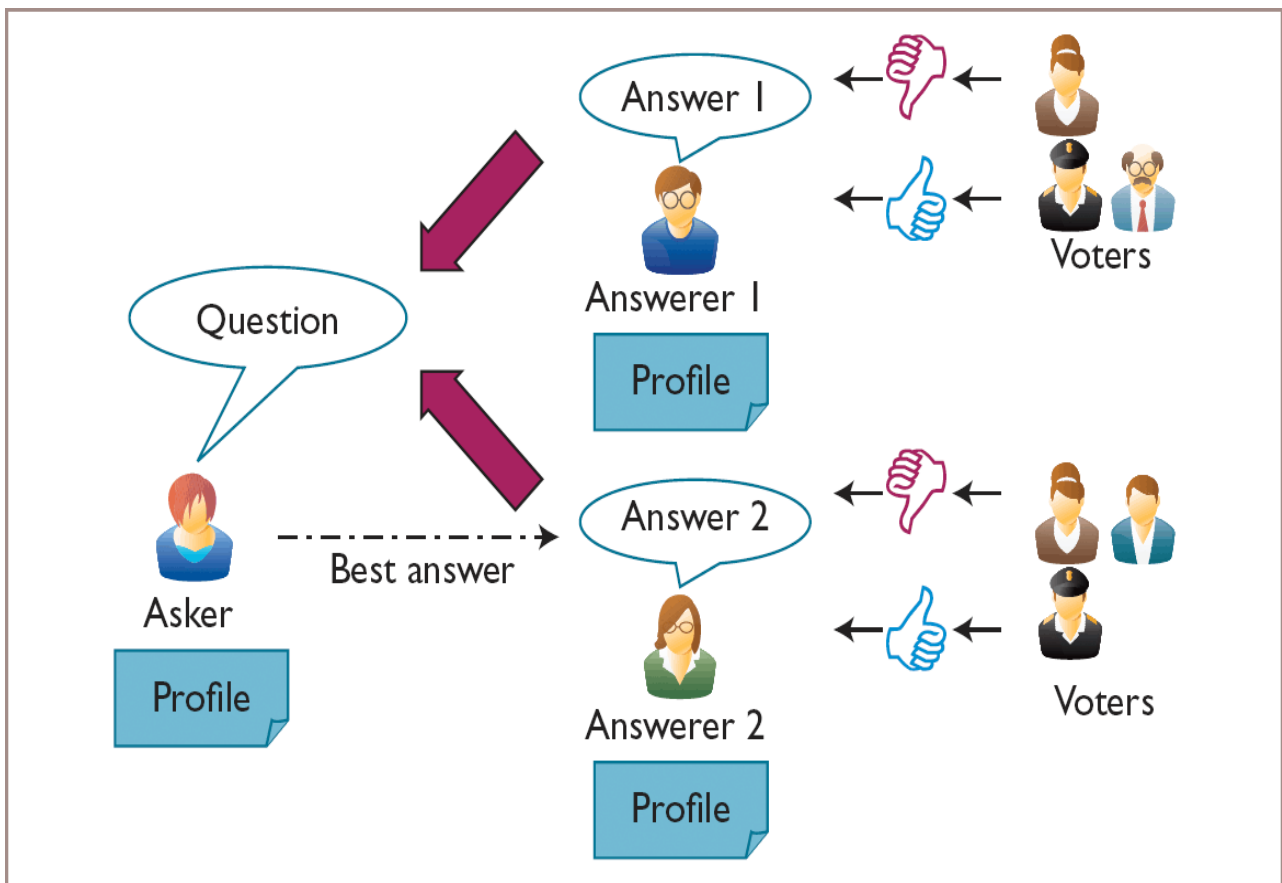
The primary purpose of this system is to enable users to post questions and answer related to competitive programming problems which the coders solves participating in national and international competition or online judges

can post their codes or programs of specific specification for means to find efficient codes or algorithm in form of question and answer. Moreover for efficiency of code this system also provides a means to compute complexity as most of coders compute it manually. In many competitive programming websites where programming problems are provided to coders as tutorials or else to compete in code run and so on. The system provides a platform where coders can post their codes for competitive programming problems which are not accepted by the online judges due to their specifications mentioned. Though their codes are correct but not accepted, they can post in this system so that other coders may help by giving various solutions for the particular problem. Also **Wang Xinjing et al. [1]** in their study proved ranking up the solutions will lead to filtering up the efficient algorithm or codes for the particular competitive programming problems. This will help the coder to score reputation score as **Lydon et al. [2]** in their invention provided the custom with the feature of scoring on the basis of coders' activity in the system.

### III. FIGURES

#### 3.1 Block Diagram

The above block diagram shows Q-A system in which the coders can generate their profile by registering themselves in the system. They can post up their codes of competitive programming problems in which they face problems and those problems can be viewed by rest of coders. They can post their answers if they want also they can rank the answers or solutions through upvoting or downvoting. With the voting system, the coder can be awarded with reputation points which lead to active participation of coders in the system.

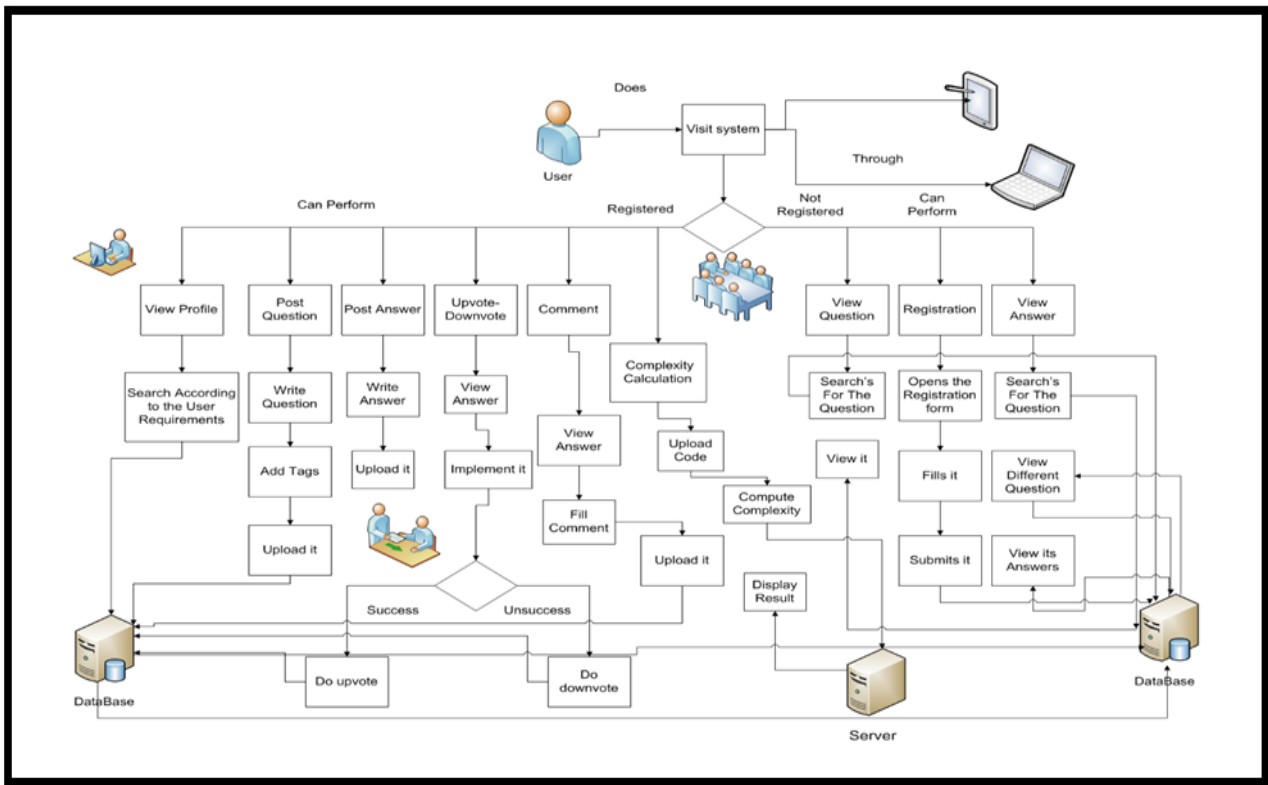


**Fig 1** Block Diagram of Q-A System

#### 3.2 Flow Diagram

The figure below is the flow diagram of the Q-A system that shows what kind of activities a registered as well as unregistered user can perform. Unregistered users can register themselves, can view and search all the questions present in the database but cannot post question or vote up the solutions. Registered users can login and post up the

codes of the competitive programming problems in which they are facing problems. Other coders in the system can post or rank up the solutions which is accurate and can score fixed reputation points. One more feature is of computing complexity through Master Theorem using MathJax.



**Fig 2** Flow Diagram of Q-A System

#### IV. RELATED WORKS

##### 4.1. Online Coding System

One such purpose of the computer is to run variety of software programs providing different functions. This variety of software programs require a collection of skills which coders possess. These coders are hired by the company to develop codes for them. As per the research undertaken by **Lydon et al [2]** in his patent **Apparatus and System for Facilitating Online Coding Competition**. It is very difficult for a company to distinguish highly skilled coders from average coders. Online Coding Competition provides competitive programming problems to the coders that include actual testing of the skilled coders. Online coding systems accept the codes which are efficient and that satisfies the specifications of the problems given. The accepted code is evaluated and on that basis rating of the coder is determined. The rating of coder encourages active participation in the system and improvement in their coding skills.

##### 4.2. Question and Answer Platform

As per the research made by **Forrest Brady D. et al. [3]** in their patent **System and Method for Collecting Question and Answer Pair** proposed question-answer platform with two interfaces. First, question interface where the user or question poser can post their problems and provides those problems to the database.

Second, the answer interface that third party posts the solution and provides those solutions to the database. A collection of question answer in the database from various sources in which there may be plurality of solutions for a given problem.

**Cong Gao et al. [4]** in his research **Discovering Question and Answer Pairs** developed a classification based technique to extract question using sequential patterns automatically and identifies the answer once the system discovers the question. A graph based propagation model is used to identify the answer to produce a list of answers for a particular

question. This process identifies the question from the database of question interface and once the question is identified, the system identifies the solutions. If the third party posts the answer or solution of particular question and if it is suitable or accepted by the question poser, he or she can approve the solution and on that basis reputation point is added to the answerer's score.

Similarly **Kraft Reiner et al. [5]** in his research **System for Managing a Question and Answer Website through an expert Answer Website** considered a database of experts with respect of different categories. Ranking of each expert is based on timeliness of answers provided by them. Furthermore **Moxley Emily K. et al. [6]** in the research **Conversational Question and Answer** describes a method that a user can submit a question that can be viewed by trusted entities of the system. The trusted entities can be other user of the system, friends and many more. Answers can be posted in form of text based conversation between them. It provides conversational environment with synchronous or asynchronous communications.

As per the research undertaken by **Liu Shi et al. [7]** in their research **A Question Distribution Method and a Question Distribution system for a Q-A Platform** and **Cao Yunbo et al. [8]** in their research **Question type Sensitive Summarization** summarizes the format of the question as input by the user in the system and identifies its type. This will help in distribution of the question and its plurality answers.

#### **4.3. Answer Ranking**

**Wang Xinjing et al. [1]** in the research **Answer Ranking in Community Answer Sites** explain methods to determine linking of plurality answer to its related question. A conventional technique to filter out efficient or correct solution is ranking up the answers. The quality of the answer can be determined. The research by **Forrest Brady D. [3]** in **System and Method for Collecting Question and Answer Pairs** stated a method that assigns a rating to the answers. Also the end users are awarded fixed reputation points to put up the answers. The accurate answer is approved by the question poser so that the answerer gains reputation points and prestige.

### **IV CONCLUSION**

The system is an educational initiative of Directi. It is a question and answer website of competitive problems. This system will help coders who faces problems with their codes can post it up while other coders can view and post out their solutions. Ranking of answer will enable awarding reputation score as well as filtering out efficient algorithm or codes.

Also with the reputation score of coders, those who want to hire skilled coders can contact them for the hiring process. one click complexity can be provided by JavaScript of Master Theorem using Mathjax.

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