# About my project

## What is my project?

My project is a website for developers to ask questions related to all aspects of programming and to answer other developers’ questions. Each user’s profile will allow them to customise the type of questions they want to answer and will include an option to receive a weekly email with popular questions. The website will not just be a question and answer site but a community for developers to learn and share expertise. It will also include social options such as direct messaging, points for helpfulness, trophies for various milestones and a profile page for each user. This page will help employers to recognise talent which will encourage developers to contribute to the site. The website will also include a page for most common languages with useful links to official documentation and tutorials. If I have time I might build an Android app and a PC program for it to allow a bigger audience.

## Why is it needed?

I believe that my project is needed because I believe that all the major programming question and answer websites have issues, but if the best features were taken from each of them, then the resulting site would become a necessity for developers. Another major reason for this project is the lack of a large community for developers to use. Many developers share the same sense of humour and the same way of thinking. The site will also allow employers to advertise jobs and will only show them to developers who would find them relevant. Developers could set their job status to “looking for job” in order to receive notifications when their perfect job comes up.

## Who will be interested?

First time developers starting their career to experienced developers pushing the boundaries of their field.

## My requirements to complete the project

To develop my project, I will use my laptop (i7 6700Hq, 16GB RAM) as it is powerful and portable as well as my home PCs. The backend will be developed in Java so I will need the JDK (Java Development Kit) as well as the JRE (Java Runtime Environment). I will use Eclipse as my IDE (Integrated Development Environment). To run my project, I will need a high capacity and high performance dedicated server running 24/7 to run both the network backend and the MySQL database. I already have a Microsoft Azure subscription which allows me to have several high performance dedicated servers which I will use to run the site and database from. I will use MySQL for the database which means I need to run Oracle MySQL Manager to both design and run the database.

## User requirements to access / use my project?

Internet connection, web browser and standard PC / laptop. Also, possible Android and PC app.

## How am I going to test it?

I am going to be running tests myself to test that the basics are working but I am going to give the website to a class and challenge them to do everything and anything they can to break it as well as test everything they can. This will allow me to test much more than if it was just me. Also, I will use a bot website to put high load on the site to stress test the server to see how it works with high demand.

# Section 1 - Analysis

## Part (A) - Computational Amenability

My project requires the use of a computer for several reasons, the first being that one of the main ways for users to access it is via the website. This allows for a global audience as anyone with an internet connection and a web browser can access and contribute to it which enriches the experience for the user. Another reason why I believe that my project requires the use of a computer is that it it’s the fastest method of communication across the world which allow for a much better user experience as they do not have to wait for a physical representation of their communication to be send manually around the world. Using a computer also allows me to create an intuitive graphical user interface to allow users to easily navigate and use the features of my project. Also, the amount of data that would need to be stored and processed in order for the project to work would be so large that using physical processing methods such as paper would be incredibly slow and inefficient and so a computer is the only viable method of running the backend of the project. Overall, I cannot think of a viable way that a project of this scale and with features such as these could be built any way other than digitally.

## Part (B) – Features

**Simple breakdown of features:**

* Question/Answer system for programmers of all skill levels to give and receive help
* Social features including posting, image sharing, content rating/voting system and a friend/profile system.
* Career features for both employers and employees including a “looking for job” system
* Android app if I have time to make it
* Tutorial pages for common/popular languages and links to documentation

**Question/Answer system:**

Programming can be very difficult in some situations, no matter how experienced or proficient a developer is. Even professional programmers resort to question and answer websites such as Stack Overflow daily. One feature of my project is a similar system because there are no major alternatives to Stack Overflow and I believe that more features could be added on top of the basic Question/Answer system. The type of questions people receive on their question page can be customised via a settings page on the user’s profile. Users will also have the option to receive popular questions by email once a week.

**Social features:**

Due to the lack of a proper community for programmers and developers, and the fact that most people programming for fun or doing it for a career share the same interests and sense of humour, I thought it would be a good idea to include various social features in my site. This will differentiate it from various other programming question and answer sites such as Stack Overflow or Super User and in the process, create a large and unique community for developers all over the world. Social features on the site include direct messaging with other users, profile pages, a dynamic and community ran points system for asking good questions and providing in depth and clear answers to other user’s questions, trophies for reaching certain milestones on the site and a posting system for developers to post content which dynamically pushes new, highly rated content to the top of the page.

**Career features:**

I thought my project needed a career feature as programming jobs can be very specific and it can be hard for employers to target jobs towards the perfect people. The site will include options to help people find their perfect programming job as well as help employers get their jobs seen by the right people. It will include a “looking for job” tag which users can activate when they are looking for a new job. The type of jobs that appear on the user’s “jobs” page will be based off one of the settings page on the user’s profile which will allow them to enter their requirements and skillset and target viable job offers to them. Career finding features go perfectly with a Question/Answer website as user’s can demonstrate their skills by answering questions and collecting trophies and points to prove to any possible employer how good they are. The site will also include extra functions such as uploading their CV to a special part of their profile page and notifications when a likely job is advertised. There will also be a “employer” setting on user’s pages to allow employers to advertise new jobs. These features will attempt to match people with their perfect development job so will encourage both employers and employees to use the site.

**Android App:**

Websites don’t always work perfectly on the increasingly popular mobile devices so if I have time after completing my project, I will make an android app for the project with all the same features but offering better performance, appearance and scaling than simply using a web browser on a phone.

**Tutorial pages:**

Programming can be very difficult to learn, so my project will contain a learning area, complete with tutorial pages for mainstream and popular languages, documentation for said languages, worked example programs and guides written by the community. This will help people to learn new languages and help experienced developers who still frequently have to check something while working. The community written guides and worked examples programs will reward points and trophies making user’s look more attractive to employers and also encourage the community to create new content to develop the site further. Adding in links to the official documentation for mainstream languages can save developers lots of time.

## Part (C) – Stakeholders

**Categories of user:**

There are 3 main categories of user that I would expect to use the website:

* Beginner / Novice developers
* Experienced developers
* Employers

**Beginner / Novice developers:**

Starting programming can be a daunting task and new developers are always looking for websites that could help them. My project will help new developers in several ways. The first way the website will help new developers is the Question and Answer feature. New developers will be able to ask questions that can be answered by more experienced members of the programming community. These questions can range from logic and general language help to questions about error messages and will provide essential support for novice developers. Another way it will benefit and appeal to new developers is that it includes a tutorial zone, complete with worked examples and links to other places to get help. This will really help people driving to learn how to program, as worked examples are incredibly useful as they show the entire process of creating a program as well as step by step instructions and explanations. The links to the documentation and other places to get help are also useful as they simply show new developers where the resources they need to get help are.

Novice developers would require the site to:

* Be easy to navigate/use
* Contain well explained tutorials
* Help them to learn to program

Novice developers would need the site to be easy to navigate/use because the learning curve in programming is so steep anyway. This would allow them to focus more on programming and less on learning how to use the site that could be the most beneficial to them while programming.

They would also require the site to contain well explained tutorials because if the tutorials were lacking in detail or hard to understand, then there wouldn’t be any point in having them. The tutorials and worked examples are on the site to help people learn to program and if they didn’t work as intended then they would just be wasting space on the server.

Finally, novice developers would require the site to help them learn to program. This is the main requirement for this group of users as I don’t want the site to be just another programming question and answer website, but a community for developers to learn, teach, recruit and communicate.

**Experienced developers:**

I would expect experienced developers to use the site mainly for reference and for the career features, as well as for using their experience to answer questions. However, I wouldn’t be surprised if they still asked questions as new developers are less likely to ask complicated and advanced questions. I believe that the career features of the site are more likely to appeal to experienced developers as they are the most likely to be looking for a job in the programming industry. The links to the documentation for mainstream languages will also be incredibly useful for experienced developers as they are likely to be referring to documentation many times each day.

Experienced developers would require the site to:

* Have an intuitive and effective question and answer system
* Have up to date links to the documentation for a large number of mainstream languages
* Provide a careers system that actively helps experienced developers find the right job

Experienced developers would require the site to have an intuitive and effective question and answer system because I believe that they would be the main source of answers on the site. They have the most experience and knowledge but if the method for asking and answering questions was clunky or unintuitive then they would be less likely to provide answers to newer developer’s questions.

Also, experienced developers would require the site to have up to date links to the documentation for mainstream languages because if the links were out of date, or incomplete, then that area of the site would be completely pointless.

Lastly, experienced developers would require the site to provide a careers system that actively helps to find them the right job as otherwise the careers system would be pointless. The careers system needs to automatically do all the difficult work and simply provide users with relevant jobs as soon as they are published. The system should also not provide users with jobs once they are no longer vacant.

**Employers:**

I think that employers will almost exclusively use the careers features of the site as I believe it to be the perfect way of recruiting the right people for the job. The set of features that will be on the site will allow employers to get their jobs seen by the right developers to avoid wasting time interviewing people unsuitable for the job.

Employers would require the site to:

* Get their job seen by the right people
* Provide analytics to show who their job is seen by and where
* Find a user who is eventually recruited.

Primarily, employers would require the site to get their job seen by the right people as there is a high chance that if the job is seen by suitable candidates then one of them will be recruited to do the job.

Employers would also require the site to provide analytics as to who their job is seen by and where their job is advertised. This would provide them with useful insight, and also prove that they are advertising their job in the right place.

Last of all, employers would want the site to find a user who is eventually recruited to do the job. This is the reason employers advertise jobs and if the site fails to do this then why would people advertise jobs on it.