**SOFTWARE DEVELOPMENT**

**Who is the speaker?**

I am Ndueso Walter Okorie, a computer teacher, a programmer and software developer.

I write programs and build software for a living. I develop desktop, web and mobile application.

I am here to introduce SOFTWARE DEVELOPMENT to you. Myself alongside your computer teacher will empower you to become creators(techies), develop critical thinking and coding skills in you to make you successful today and tomorrow.

**WHAT IS SOFTWARE DEVELOPMENT?**

Software development is the process programmers use to build computer software. Software development provides a series of steps for programmers to create computer programs/software.

**QUALITIES OF A GOOD PROGRAMMER**

1. **Passion: (affection, emotion, feeling, and sentiment) for the work.**
2. Passion for mathematics.
3. Good communication skills: Good communication skills directly correlate with good development skills. A great programmer is able to understand problems clearly. They understand concepts quickly, or ask the right questions to help make them clear, and don’t need to have everything written down in a specifications document.
4. **A Good Team Player:** The capacity of premium developers to assist other developers in improving is another outstanding trait. They assist teammates when they are stuck, impart new knowledge to others, and provide documentation that will be useful to teammates both within their company and throughout the developer community.

### High Degree of Creativity/Think outside the box (that means to think differently, unconventionally, or from a new perspective).

1. **Willingness to learn/research**
2. **Pay attention to details**

### A Vast Amount of Patience

A good programmer has to have a near-endless amount of patience. That’s because programming isn’t at all an easy thing to master, and even the best in the field run into stubborn bugs, logic issues, and other troubles in their projects. When that happens, the only way through it is to stick with the work

**WHY SOFTWARE DEVELOPMENT**

Software developer is the most in-demand job in the world now.

When you learn programming, it is not only about the knowledge you acquire, but also (and specially) about the useful transferable skills you get.

you significantly improve your problem solving and abstraction skills.

1. To get money

2. To automatize your daily tasks

Are you tired of doing repetitive tasks? Do you hate already doing the same computations every day because you could not find a proper application that does the job for you? Well, if you learn programming, you will be able to **create your own (small) programs/applications** to ease your daily tasks. No one better than you will know what you need, and if you can find a solution for it… great!

## ****Career Options in Software Development****

**Web developer (Front-end and backend developer)**

### Front-end developer:

[Front-end developers](https://www.upgrad.com/blog/front-end-developer-resume-samples/) are IT experts who specialize in website interface designs. If you are actively looking for software development career opportunitiesas a front-end developer and are interested in building the ‘client-side’ of web applications or websites, then this role is perfect for you. Front-end developers are responsible for determining the actual structure of the web pages as well as balancing the functional aspects. These tasks ensure that the proposed design is highly optimized to display across different screens including smartphones, laptops, desktops, tablets, etc.

One must have a good understanding of markup languages, such as HTML, to create user-friendly and responsive designs. Besides, an individual must have a good knowledge of the latest digital technologies along with the skills to combine visual design and usability.

### ****Back-end Developer****

Back-end developers are considered the pillar of the software application development lifecycle as they are responsible for the server-side of the application. Responsibilities of a back-end software developer include writing clean code for developing a new application, performing UI testing, troubleshooting and debugging the application, employing the latest technologies to improve legacy applications, and building reusable codes and libraries.

If you are searching for a stable career in the software development domain, then back-end developer can be a good start. However, you must have a comprehensive and in-depth understanding of software development processes. Excellent analytical skills, time-management skills, problem-solving attitude, and knowledge of HTML, CSS, JavaScript, and CMS framework can help you land a job in a reputed company.

In order to procure a senior software positions in a compan, a back-  end developer must possess certain high skill sets that accelerates their career growth.

**Data scientist:** To begin your career as a data scientist, you must be aware of machine learning techniques as well as advanced statistical concepts. You should master new technologies with good multilingual coding experience such as Java, JavaScript, C, and C++. Besides coding, you must excel in statistics and [data mining techniques](https://www.upgrad.com/blog/data-mining-techniques/) and possess a good understanding of various web services.

### ****Game Developer****

Playing video games on a desktop during childhood is a memory worth cherishing. If you have grown up with a dream to build your career in game development, then you must know some technical aspects of this challenging domain of software development. Game developers are responsible for constructing a game engine and translating requirements into complicated yet clean code. The primary job responsibilities of a game developer are producing prototypes, animating characters, and generating game scripts.

### ****Quality Analyst****

Quality analysts are also known as test engineers or quality assurance analysts. They are responsible for evaluating systems, software, applications, and other digital products. Product evaluation ensures that they are free from any technical errors, defects, bugs, and that they meet all quality standards. Developing the design and execution strategy for test plans is a critical role of quality analyst engineers. Validating the test plans and processes to predefined quality standards is one of the main focus areas in this challenging profession.

**Mobile developer:** the design and build application that runs on mobile devices.

### Cloud Engineer

[Cloud developers](https://www.upgrad.com/blog/how-to-become-a-good-cloud-engineer/), similar to software developers, design and build applications on virtual systems usually known as Cloud. These Cloud systems run on a physical location and that’s where Cloud engineers or Cloud developers come into the scenario

### ****Embedded System Engineer****

Embedded systems are a combination of hardware components and software applications designed to perform specific tasks. Some of the examples of embedded systems include analog sensors, microprocessors, microcontrollers, etc. An embedded software program is the code that runs the entire system without manual intervention or human output

### Embedded systems examples

| **Standalone embedded systems** | **Network embedded systems** | **Mobile embedded systems** | **Real-time embedded systems** |
| --- | --- | --- | --- |
| Digital cameras  Digital watches  Temperature measurement systems  Washing machines | Home security systems  Point of sale (POS) systems  Automated teller machines (ATMs) | Cell phones  Laptops  Tablets  Smartwatches | Self-driving vehicle controls  Aircraft control systems  Medical devices and patient monitoring systems |

**DevOps engineer**

A DevOps engineer is responsible for optimizing an organization's software, including software maintenance and server administration. they are responsible for reviewing and testing new code and also ensure the security of the software in the system.

Desktop Application developer: The design and build stand-alone applications that runs locally on computer devices. Desktop applications are tools developed to serve specific purposes for computer users.

COURSES

Languages we will be learning in our software development class include:

**Web development**

* HTML
* Javascript
* PHP
* Database design
* sql
* Web hosting

**Desktop application development**

* Vb.net
* Database design
* sql
* Deployment