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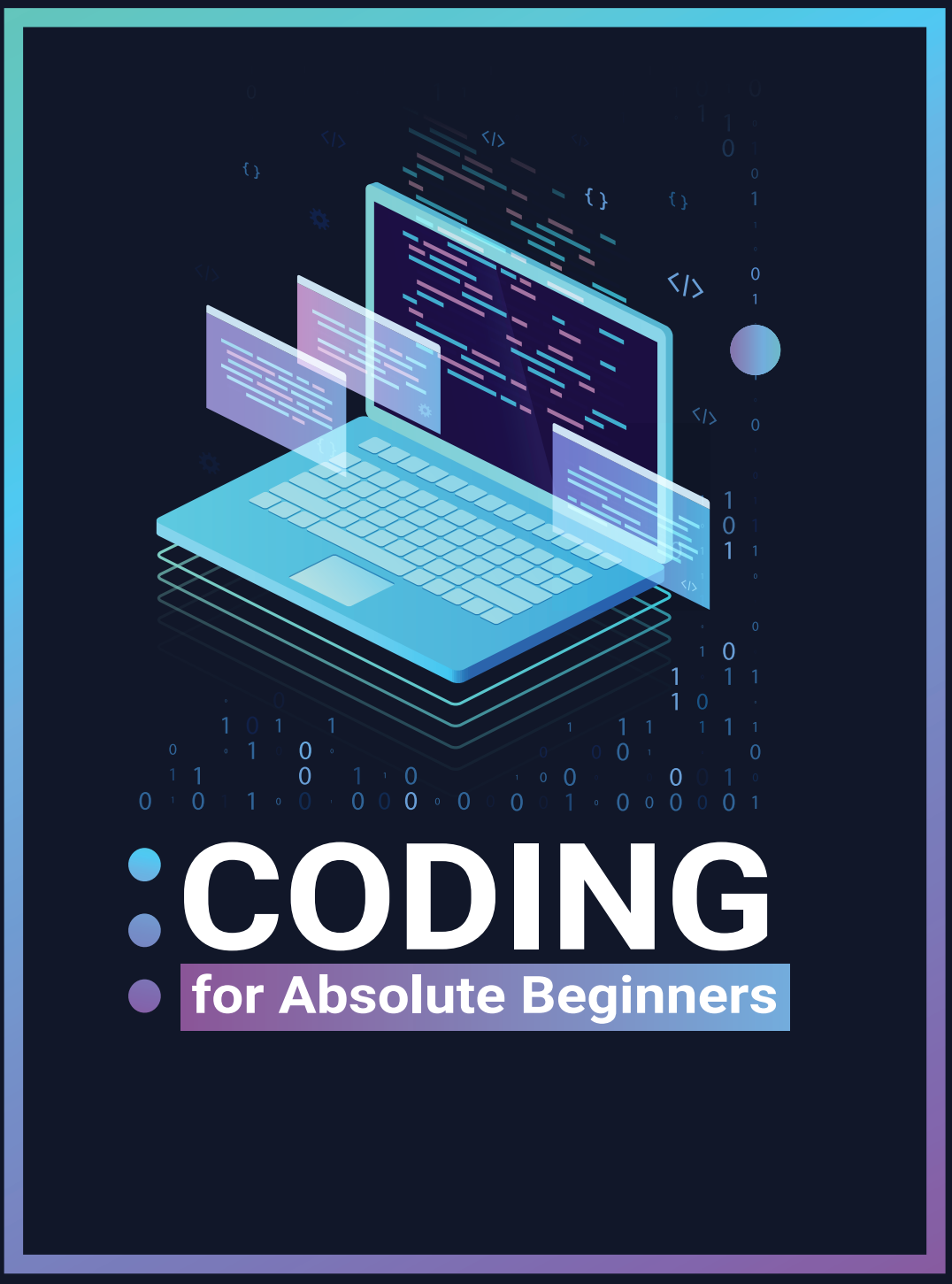


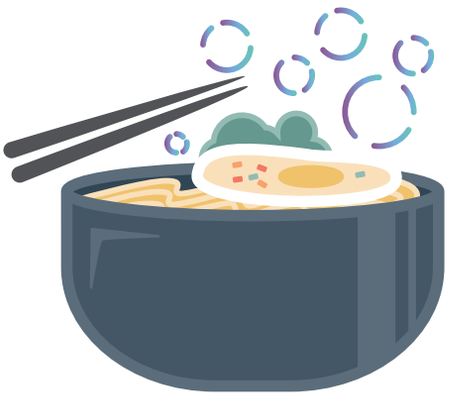
CODING

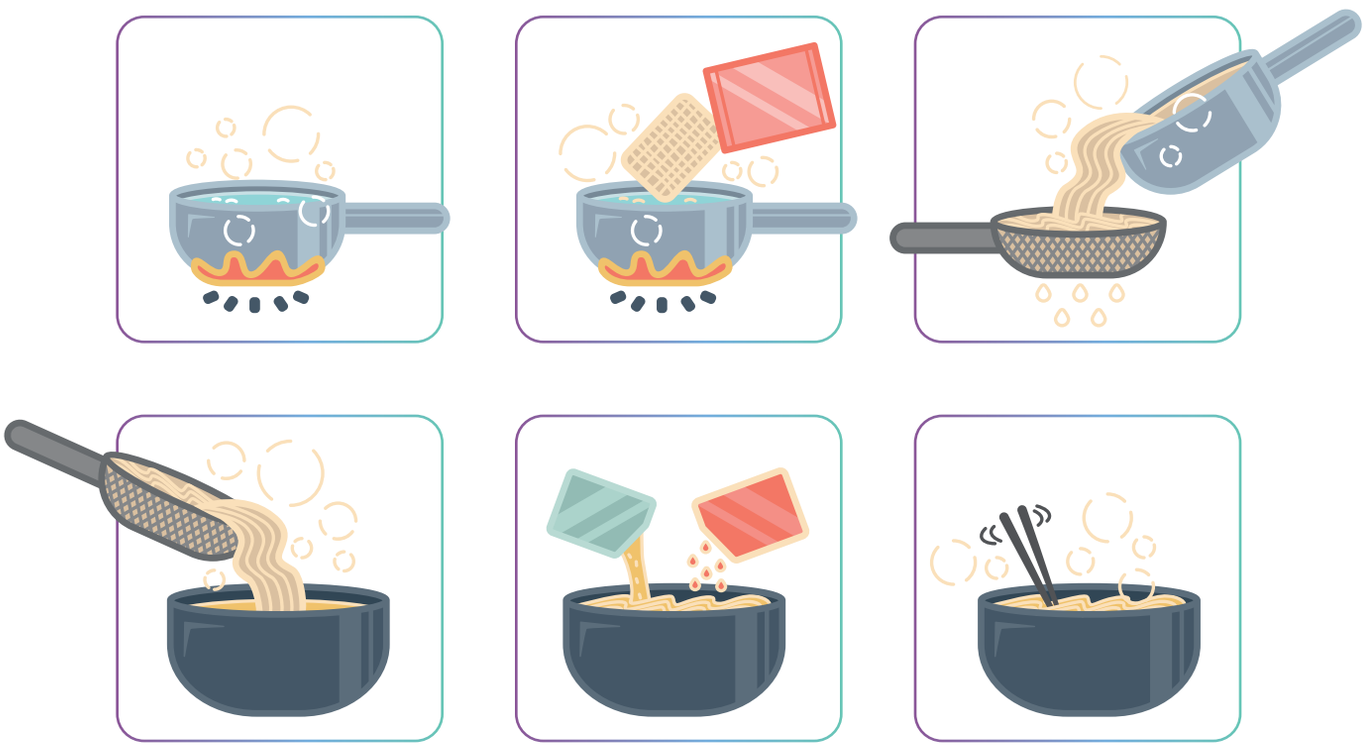
for Absolute Beginners

INDEX

What is programming?

Programming can be explained in analogy to cooking. First comes the intent. You intend to cook a delicious breakfast for your mom. You decide to follow a recipe and get all the ingredients in place. The recipe is the set of instructions which tells you the steps and if/else conditions to make the particular dish. And the ingredients are the objects and classes used to carry out a function or a method to execute the program. The recipe is written in a human-friendly language whereas programming is written in a computer language.





Programming in simple terms is giving a set of instructions to a computer to execute a function.

> In fifteen years we'll be teaching programming just like reading and writing.... and wondering why we didn't do it sooner
>
> **- Mark Zuckerberg**

Being able to code today is as important as reading and writing

CODING FOR ABSOLUTE BEGINNERS
Duration: 6 Weeks

ENROLL NOW

In today's digitally-connected world, it's not about whether you code yourself or not, it is about whether you understand the fundamentals of how the things run.

Often we say, *"God is God because He understands the architecture of the universe"*; and in today's world if you understand the architecture of the tech world, you can stay relevant. It is more than job or career. Because it is the basic survival skill, a part of everyone's core skill.

Programming:
an empowering skill in the technology-driven knowledge era

Even if you have no plans to become a developer, programming is a basic skill that will give you access to leverage the power of digital technologies.

Here we have collated facts and figures to give you an insight into how digital technologies are influencing the economy and the lives of people in Hong Kong, one of the most digitally savvy markets in the world.

79%

[1]Mobile Penetration

[1]Internet Penetration

85%

CORPORATES

- 93% [2]Corporates anticipate to increase investment level in next 2 years
- 85% [2]Corporates have increased digital investment this year versus 2017
- 73% [2]Corporates anticipate very fast/fast digital transformation in their company
- 67% [2]Corporates are proactively searching for the latest digital technologies
- 37% [3]High-tech enterprises have made digital development the top priority.

CONSUMERS

MOST POPULAR ONLINE

- 75% [4]consumers buy Airline Tickets
- 71% [4]consumers make Hotel Reservstions
- 60% [5]consumers apply for Credit Cards
- 31% [4]consumers buy Apparels
- 31% [4]consumers buy Car Insurance

ATTITUDE

TOWARDS DIGITAL

46%

Believe that new technologies offer more opportunities than risks[6]

43%

Prefer to complete tasks digitally whenever possible [6]

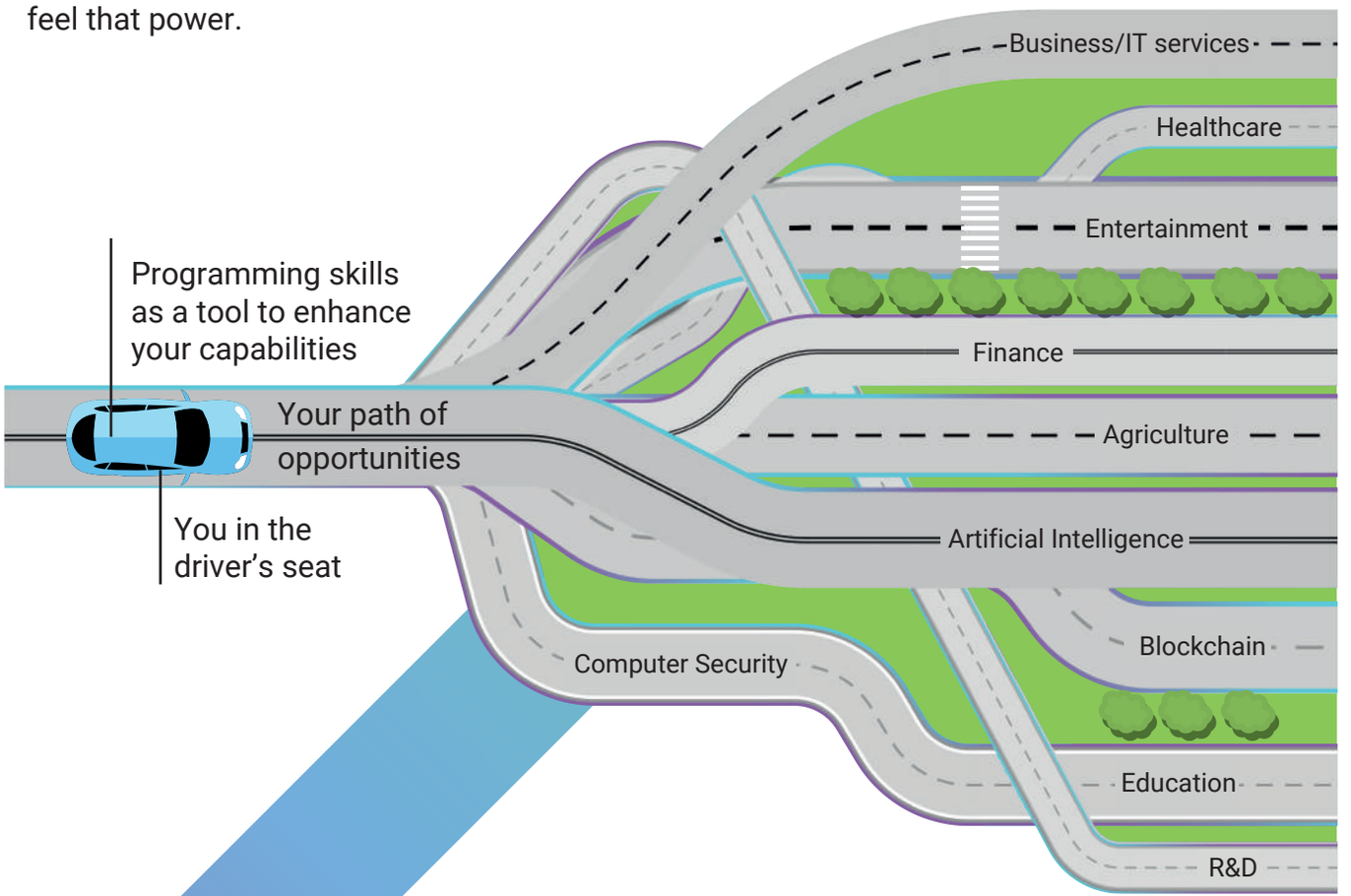
Sources: [1] HKRMA, [2] Google, [3] Deloitte, [4] HKRMA, [5] Google, [6] We Are Social

Where You Sit Matters.
Driver's seat or back seat?

Imagine yourself at the back seat of a car sitting and watching others drive past you, making a whooshing sound. Your excitement level rises high as you see the drivers of the cars navigating the curves and the turns. As you watch them driving onto rural routes or twisty back roads you want to be like them. You want to be behind the wheels, steering the car in the direction you want. You want to feel that power.

In today's technology-driven world, programming gives you that power. The power to be on the driver's seat.

From algorithms helping farmers decide what's best for a crop to users booking cabs with a click on their mobile phones – programming is the fundamental underpinning of everything that's digital around us. And learning and understanding programming gives you the power to sit at the driver's seat driving to the destination you want to reach.



> Everyone should know how to program a computer, because it teaches you how to think!
>
> **- Steve Jobs**

Learning programming from a skill set perspective

The ability to code teaches you how to think. It teaches you how to take large and complex problems and break it into pieces, which eventually makes the problem simpler. Where others see chaos, coding teaches you to see data. Such skills are valuable in today's fast-paced economies where change is the norm.

CODING FOR ABSOLUTE BEGINNERS
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Career Opportunities After Learning Programming:

1. FRONT-END WEB DEVELOPER

A front-end developer, besides knowing programming should have an eye for aesthetics. He/she is responsible for creating functional and visually appealing web experiences. Usually front-end developers work closely with the User Interface (UI) and back-end developers to provide users with a seamless online experience.

2. BACK-END WEB DEVELOPER

While the front-end developers focus on UI and user experience (UX) of a website, the back-end developers build and maintain applications that maintain server, database, and build server-side applications.

3. FULL-STACK WEB DEVELOPER

A full-stack web developer is the modern jack of all trades. He/she can use a combination of languages to build what an end-user sees on the browser and at the same time knows how to build the foundational structure of an application.

4. DATA ENGINEER

With data at the center of business making decisions, the role of data engineer involves collecting data, storing data, and processing them in real time to the data scientists.

5. DATA SCIENTIST

It's touted as "the sexiest job of the 21st Century" by the Harvard Business Review. With more and more companies trying to leverage the power of data to optimize customer experience, we can safely assume that the role will remain in demand.

Do you want be part of the growing breed of new-age data scientists ? Pursue a career in data science visit xccelerate.co. In this 16-week immersive bootcamp, you will learn to transform data matrices and perform data visualizations. For a part-time course, you can also visit xccelerate.co

6. UX DESIGNER

He/she designs user-centric solutions in collaboration with the data team to deliver the right communication, content, and experience to the right customer at the right time.

If you are interested in cognitive science and how people interact with a product/brand, then user experience design may be the career area you want to explore. Visit xccelerate.co for a part time course in user experience design and develop a people-centric approach towards digital products.

7. MOBILE APPLICATION DEVELOPER

They are basically creators and they create solutions for mobile devices using programming languages. Given that the time spent on mobile is consistently rising across people of all ages, most businesses need highly skilled mobile developers to adapt their website or service to mobile usage.

8. SYSTEM ADMINISTRATION /DEVELOPMENT OPERATIONS

Most of you often hear these phrases “the server has crashed”, or “the server is down” But do you know who ensures that the server is up and going again? Well, it’s the system administration guys, the backbone of any business. A system administrator has a strong understanding of a company’s software & hardware, knows how to troubleshoot networking problems, has worked with servers, can patch and upgrade software, and much more!

9. BLOCKCHAIN MANAGER

Initially developed to account for Bitcoin, the groundbraking digital currency, blockchain is now one of the most dynamic technologies of the present day. The job requires one to possess a deep understanding of existing programming technologies and concepts along with knowledge of cryptography. Though in its initial days, it really has the potential of revolutionizing the banking and finance sector.

To understand the fundamentals of Blockchain and Ethereum, enroll for a four-week Blockchain technology course. Visit xccelerate.co to know more about the course.

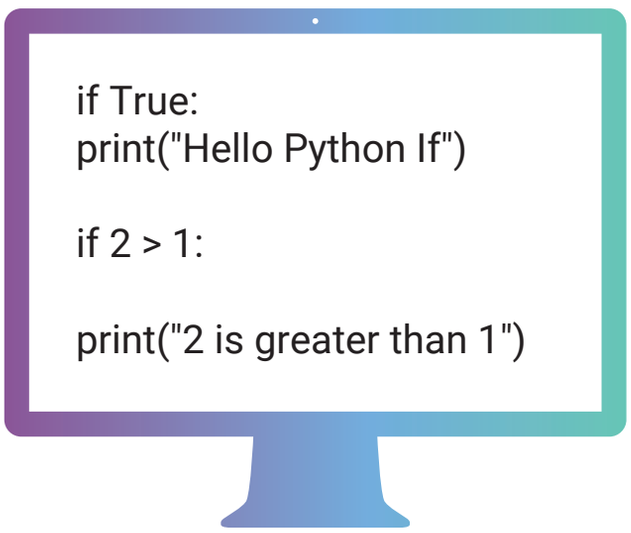
Which is the right one for you?

The answer depends on what do you want to accomplish after learning coding. Over here we discuss two important languages that you must learn -

< / > PYTHON

Backed by Google, this language is gaining popularity amongst programmers. It's widely used in scientific computing, data mining, machine learning, and Artificial Intelligence (AI). It is a simple-to-learn language and is an ideal choice for fast prototyping owing to its readability and easy syntax.

Let's see an example:



It is as simple as that. Quora, Spotify and Pinterest all use Python.

<?> JAVASCRIPT (JS)

It is one of the three core technologies that powers the World Wide Web. It's the only language that can be used for building front-end, back-end, mobile, and browser extensions. To say that JS is ruling the web won't be an understatement. Although its name is similar to Java, but they both differ greatly in design.

Below is an example of a simple JS code that alerts "Hello World!" on your browser:

To test the code, open Firefox in your desktop, go to any webpage you want to visit and right click anywhere on the page. Now select "Inspect Element". Go to "Console". Then Copy "alert("Hello World!");" without the double quotations and paste it in the editor and enter. Your webpage alerts the message. What happened is that the JS code ran on the browser editor and replicated the above behaviour. Interesting isn't it? Imagine what you can achieve using JS.

Learn the fundamentals of programming using JS to build small applications. Pursue Coding for Absolute Beginners. Visit xccelerate.co to more about the course.

Other Important Skills To Learn

1.HTML

Everything you see on the internet is written in HTML. It is the skeleton for any web page. It defines the structure of your App like headings, paragraphs, media elements, and menus. It constantly evolves to meet the demands of the new internet requirements.

2.CSS (Cascading Style Sheets)

Without CSS, any website you see would look visually unappealing. CSS is what helps you design and give a fine look to your websites and apps. They are the rules which define the layout, structure, and colour on the website. Similar to HTML, it does not have a steep learning curve and it relies more on the user interface design.

3. MySQL

MySQL is an open source database management system that has been around for years. It is an easy-to-use tool and so a first choice for small to medium websites. Owing to its high flexibility and compatibility on various systems, it is high on popularity.

4. Node.js

It allows programmers to execute JavaScript code outside of a browser which makes Javascript a server-side scripting language. It is primarily designed for real-time and push-based architectures. The fact that Netflix, Uber, PayPal, eBay and LinkedIn (mobile app) choose Node.js shows its increasing popularity.

Demonstrating How Code Works For A Basic Web Application

Let us build a simple countdown timer using JS. We will be dividing the code in three parts - HTML, CSS, and JS. We will be explaining each one of them.

HTML:

```
<div class="container">
  <h1 id="head">Countdown to my birthday:</h1>
  <ul>
    <li><span id="days"></span>days</li>
    <li><span id="hours"></span>Hours</li>
    <li><span id="minutes"></span>Minutes</li>
    <li><span id="seconds"></span>Seconds</li>
  </ul>
</div>
```

The HTML snippet looks fairly simple. We are making a 'Countdown timer to my birthday'. We put this text in a heading and create a list of timer items like days, hours, minutes, and seconds wrapped in span.

Now let's give our HTML some style. Here is the CSS code snippet you will place in a CSS file and include it inside the header tag of the HTML page. These are basic CSS being done like background color, text align, font-weight etc. Nothing fancy here.

CSS:

```
* {
  box-sizing: border-box;
  margin: 0;
  padding: 0;
}

body {
  background-color: #ffd54f;
}

.container {
  color: #333;
  text-align: center;
}

h1 {
  font-weight: normal;
}

li {
  display: inline-block;
  font-size: 1.5em;
  list-style-type: none;
  padding: 1em;
  text-transform: uppercase;
}

li span {
  display: block;
  font-size: 4.5rem;
}
```

Let’s come to the main and final part of the puzzle - JS.

JS:

```
const second = 1000,
      minute = second * 60,
      hour = minute * 60,
      day = hour * 24;

let countDown = new Date('Sep 30, 2019 00:00:00').getTime(),
    x = setInterval(function() {

      let now = new Date().getTime(),
          distance = countDown - now;

      document.getElementById('days').innerText = Math.floor(distance / (day)),
       document.getElementById('hours').innerText = Math.floor((distance % (day)) / (hour)),
       document.getElementById('minutes').innerText = Math.floor((distance % (hour)) / (minute)),
       document.getElementById('seconds').innerText = Math.floor((distance % (minute)) / second);

      //do something later when date is reached
      //if (distance < 0) {
      //  clearInterval(x);
      //  'IT'S MY BIRTHDAY!;
      //}

    }, second)
```

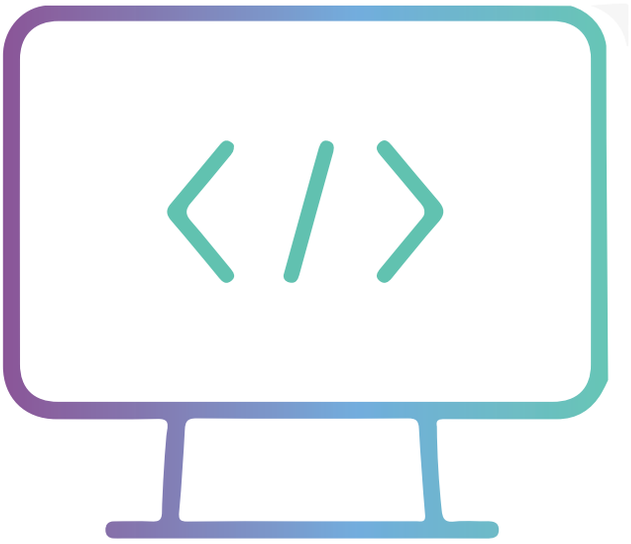
First, we are assigning the time variables using **const** keyword which disallows the variables to be reassigned. **second** is assigned 1000 which is 1000 miliseconds. The rest of the time variables are self explanatory. Next, we are using **let** keyword to assign countDown a Datetime object(dummy birthdate). **Let** is new keyword in JS used to define the variables only inside the block. Then, we calculate **now** variable which is basically the difference between the countDown time and current time. The difference is stored in **distance** variable and replaced with the text inside the HTML. The entire function is wrapped in **setInterval** function which does the job of calling the function at specified intervals which in this case is **second**.

To sum it up all, create a file called countdown.html, countdown.js and countdown.css. Add the JS and CSS code in their respective files.

Add these above **</head>** tag

```
<link rel="stylesheet" href="countdown.css">
<script src="countdown.js"></script>
```

Run countdown.html in your browser and have fun.



CODING FOR ABSOLUTE BEGINNERS

Duration: 6 Weeks

TIME

Mon & Weds
19:15 - 21:15

PREREQUISITES

Basic knowhow of browsing, exploring files and folders etc.

OVERVIEW

In this 6-week part time evening course, you will learn the fundamentals of programming using Javascript - a modern and popular programming language. You will be able to utilise the building blocks and tools that will empower you to build small applications using javascript.

You will able to learn and understand providing instructions for computers to work.

You will be introduced to common data structures and algorithms along with the modern tools to develop and test your programs.

ENROLL NOW