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**Benha University**

**Research Article / Research Project / Literature Review**

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**Title: -**

**Build a website on Programming Languages**

By:

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**Introduction**

The programming language, is a set of commands, written according to rules determined by the programming language, and then these commands go through several stages until they are executed on the computer. There is a different types of Programming language and each one has its field some is for web page and some is for making programs and some for making mobile application. In this website we will discuss this.

**Types of Programming Languages:-**

1. **Low level programming languages:**
   1. Machine code
   2. Assembly Language
   3. TMG language
2. **Some of High level programming languages:**
   1. C++
   2. Java
   3. C#
   4. Pascal

**Types of Programming Languages:-**

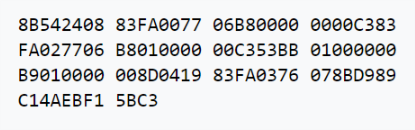
**1) Low level programming languages**

Low-level programming language is a programming language that provides little or no abstraction from a computer's instruction set architecture commands or functions in the language map closely to processor instructions.

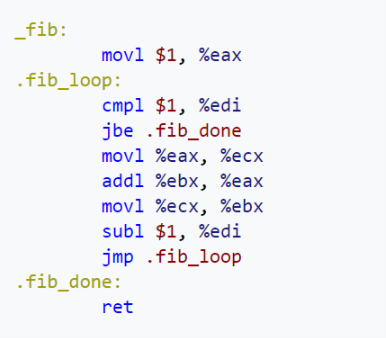
**Types of Low level programming languages:**

**Machine code:**

Machine code is the only language a computer can process directly without a previous transformation. Currently, programmers almost never write programs directly in machine code, because it requires attention to numerous details that a high-level language handles automatically. Furthermore, it requires memorizing or looking up numerical codes for every instruction, and is extremely difficult to modify. **For Example:**

****

**Assembly Language:**

**** Second generation languages provide one abstraction level on top of the machine code. In the early days of coding on computers like the TX-0 and PDP-1 the first thing MIT hackers did was write assemblers. Assembly language has little semantics or formal specification and being only a mapping of human readable symbols and including symbolic addresses to opcodes, addresses, numeric constants, strings and so on.one machine instruction is represented as one line of assembly code. Assemblers produce object files that can link with other object files or be loaded on their own. **For Example:**

**2) High level programming languages**

High-level programming language is a programming language with strong abstraction from the details of the computer. In contrast to low level programming languages. It may use natural language elements or it sometimes be easier than the natural language. He process of developing a program simpler and more understandable than when using a lower level language.

**Table show High level programming languages and its uses**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name of language** | |  | | --- | | **field of use** | |  | |
| C++ | Application |
| Java | Application-Games |
| Python | Web application-Games |
| Swift | IOS applications |
| Ruby | Web application- Mobile application |

**Advantage of High level programming languages:**

1. The programs written in high level Programming language and its independent that mean it could be run on another system.
2. Easy to understand because it have a keywords, function and class that looks like English words that makes it understandable.
3. Easy to code, read and editing. Also we can edit programs which is written by other Programmers easily.
4. High level program languages are slower than Low level programming languages but it's still popular to developer.

**How Programming Languages Works**

The computer only understand to distinct types of data (on-off). The computer is a collection of transistor. Anything that computer can do is nothing more than a unique combination of some transistor turned on and some of them are off. Binary code is representation of these transistor as 1s when the transistor is on and 0s when the transistor is off.8 digit represent an 8 transistor. It will be difficult to write programs with 0s and 1s Like (Machine Code)Low level languages, so the Low level programming language has developed to use a keyword, function and class that is similar to English word(High level programing languages). After writing a program with High level programming languages the computer can't understand this codes so it has to translate all the code in a program into a series of on and off that it can understand.

**How the Compiler work**

1. The source code is translated into Assembly language
2. The Assembly code is translated to Machine language
3. The Machine language is directly executed as binary code

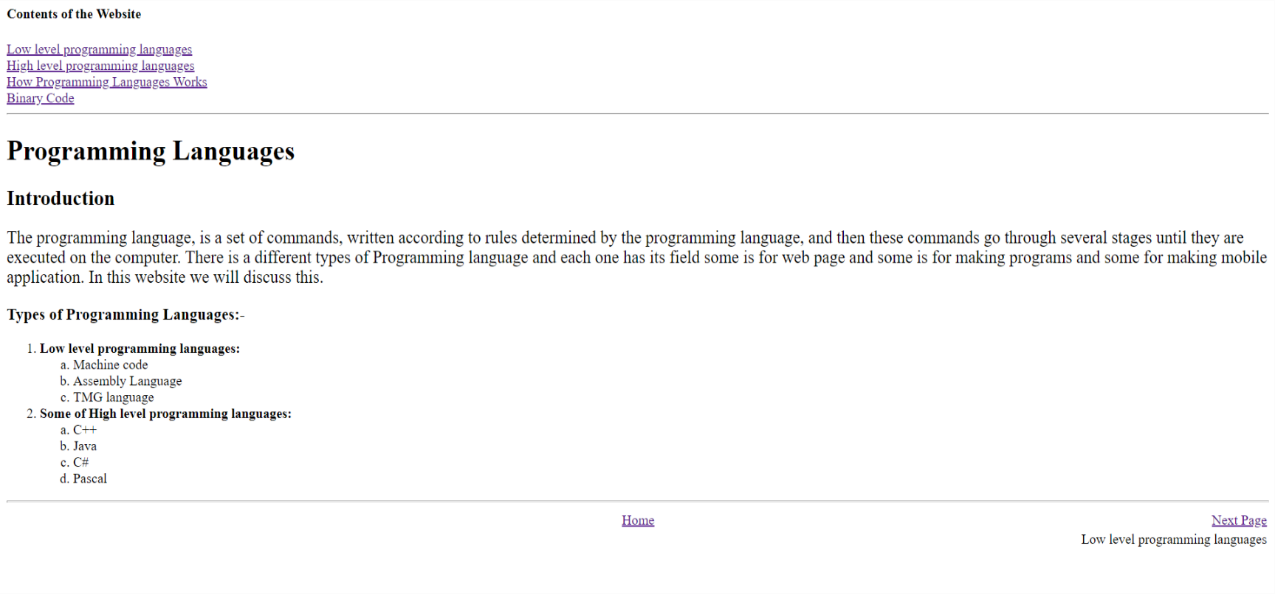
**Binary Code**

The Computer doesn’t understand our language, he is only understand **0s and 1s**, so we need to translate our order and instruction to **0s and 1s**, and this language is called: **Binary Code.**

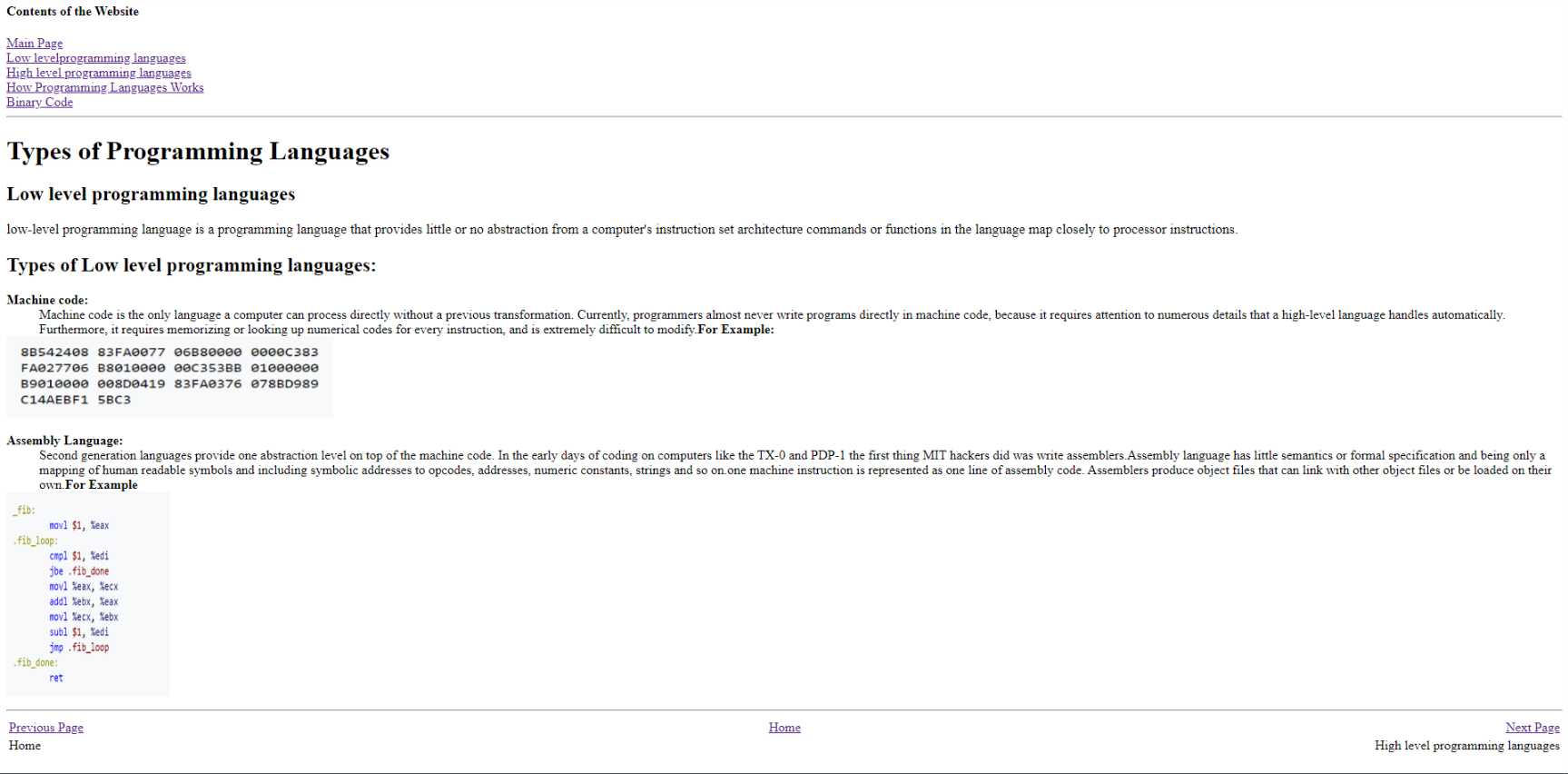
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| Converting from Decimal numbers to Binary code | Converting Alphabet to Binary code |
| **C:\Users\Alaa\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Binary code3.jpg** | C:\Users\Alaa\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Binary code2.png |

**Screenshots of my website**

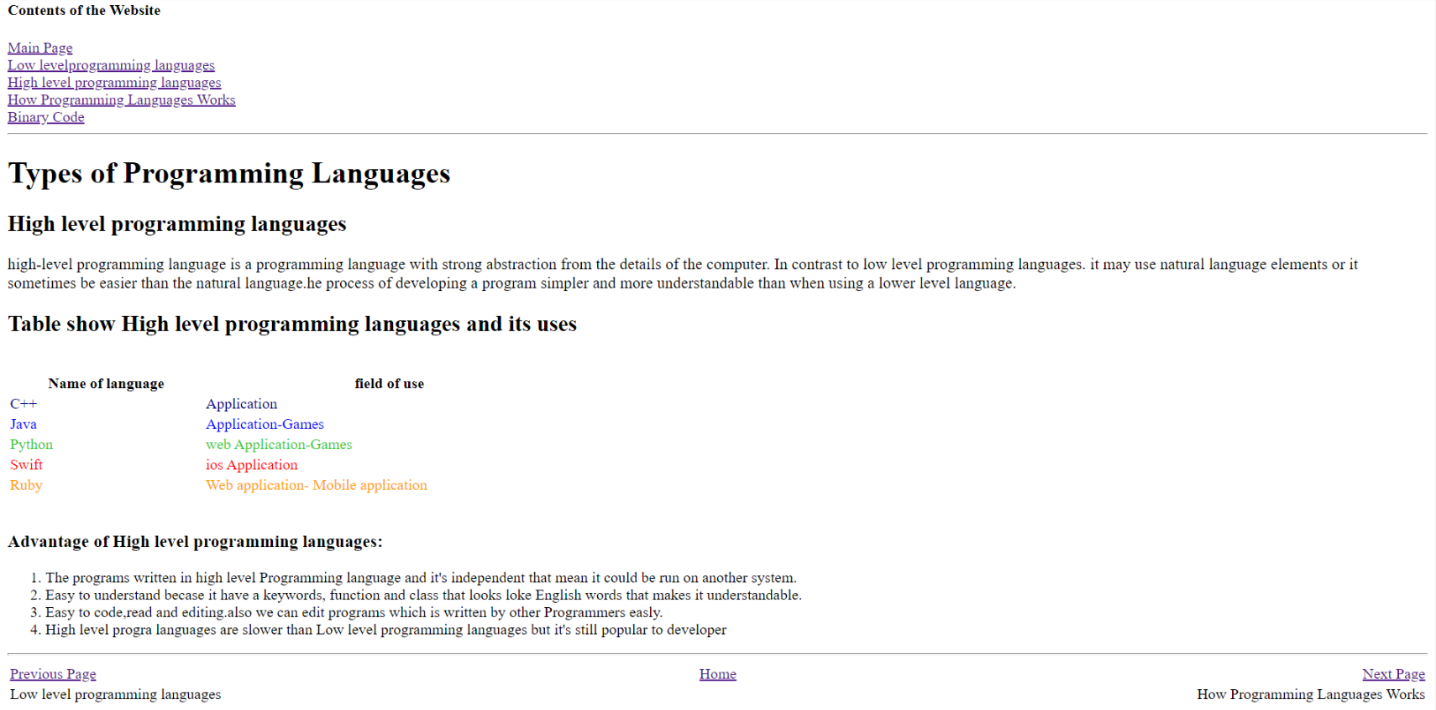
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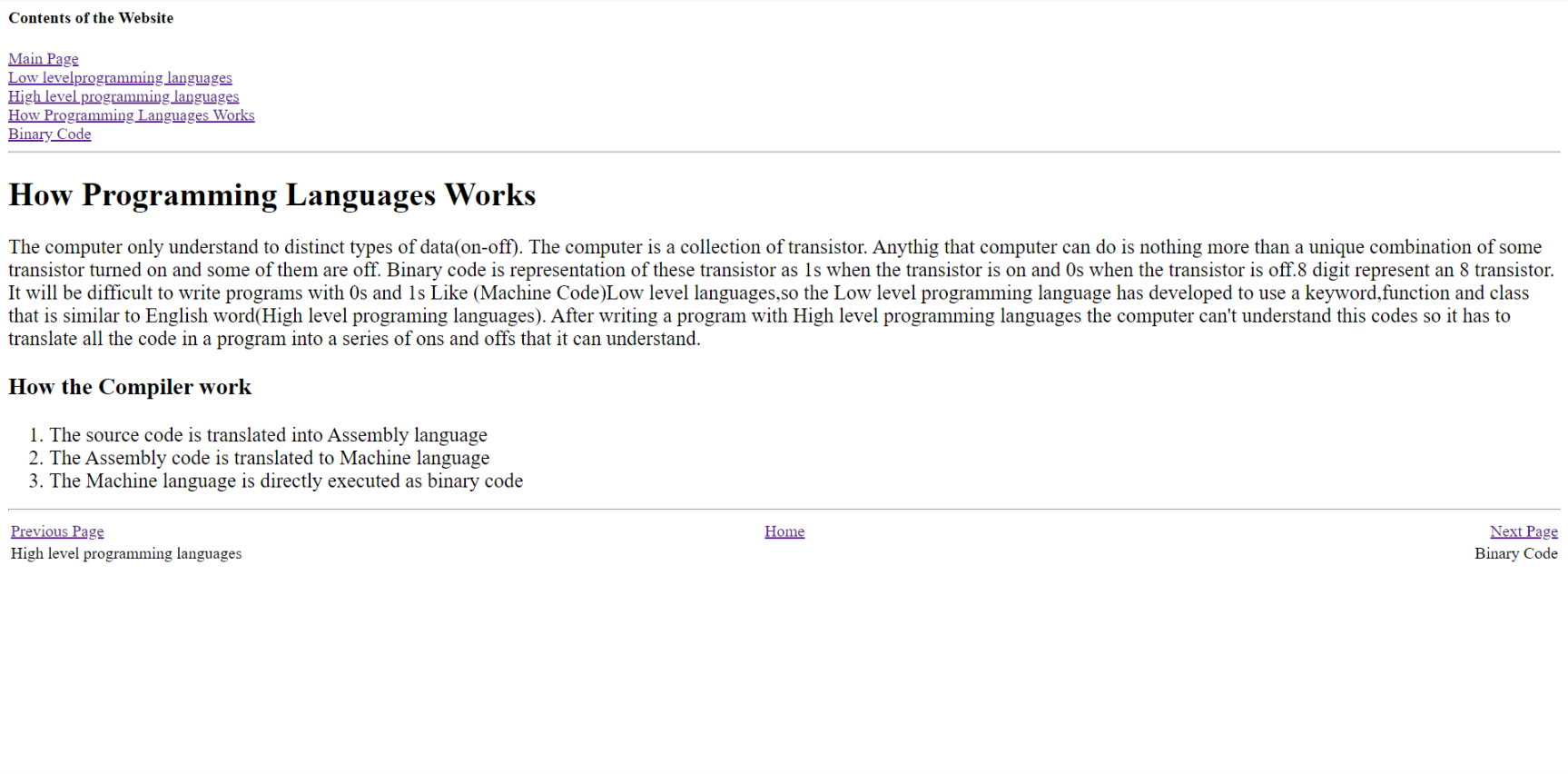
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Page 1

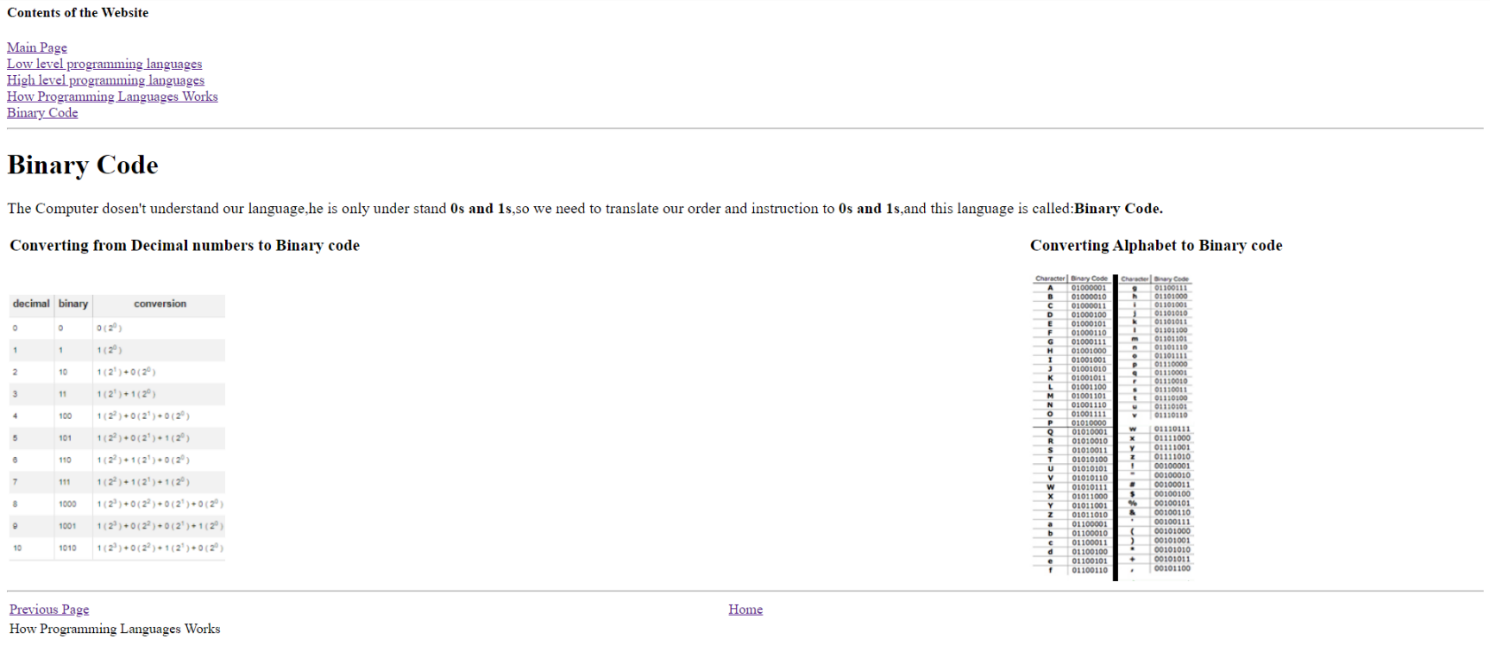


Page 2

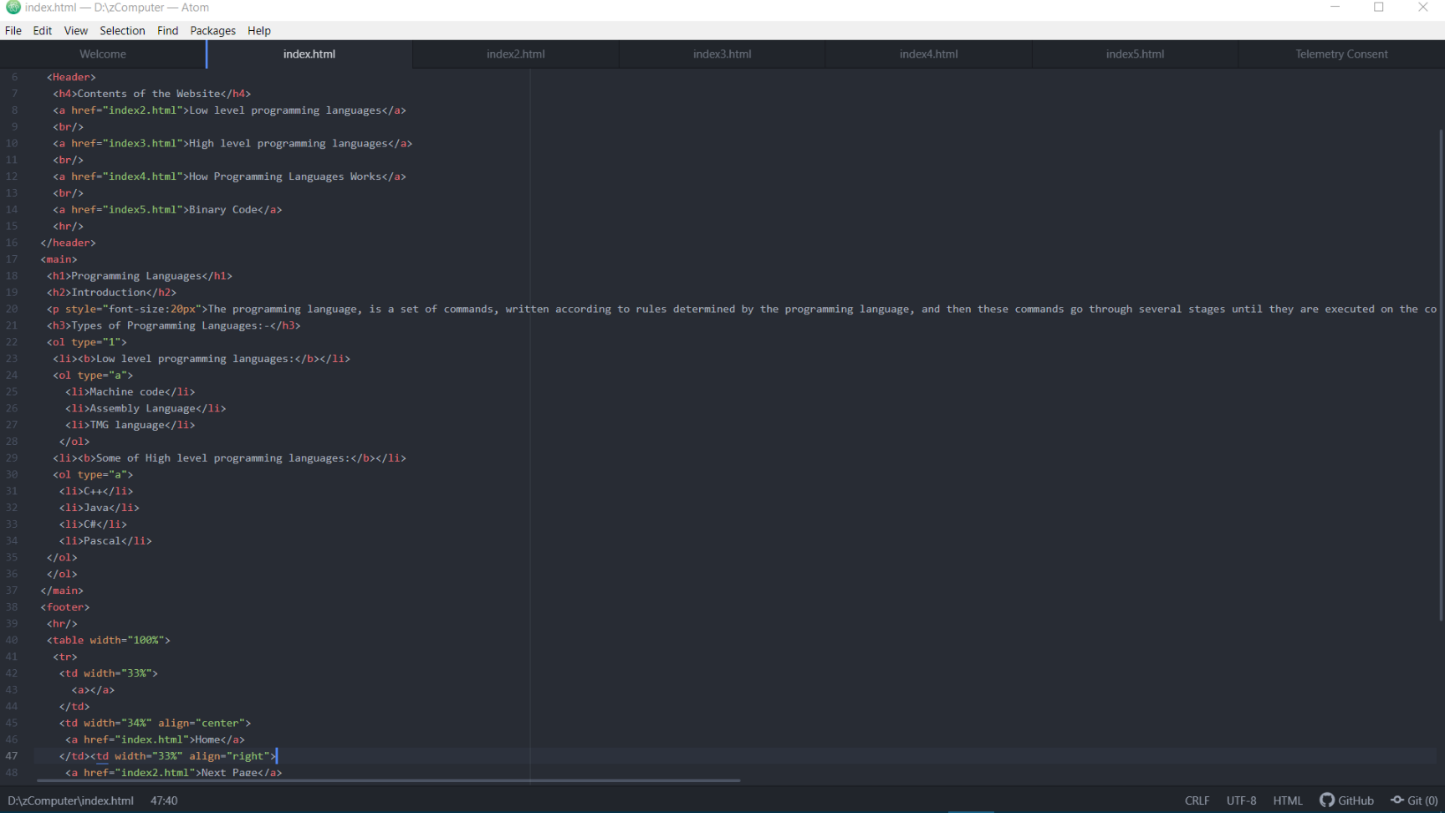


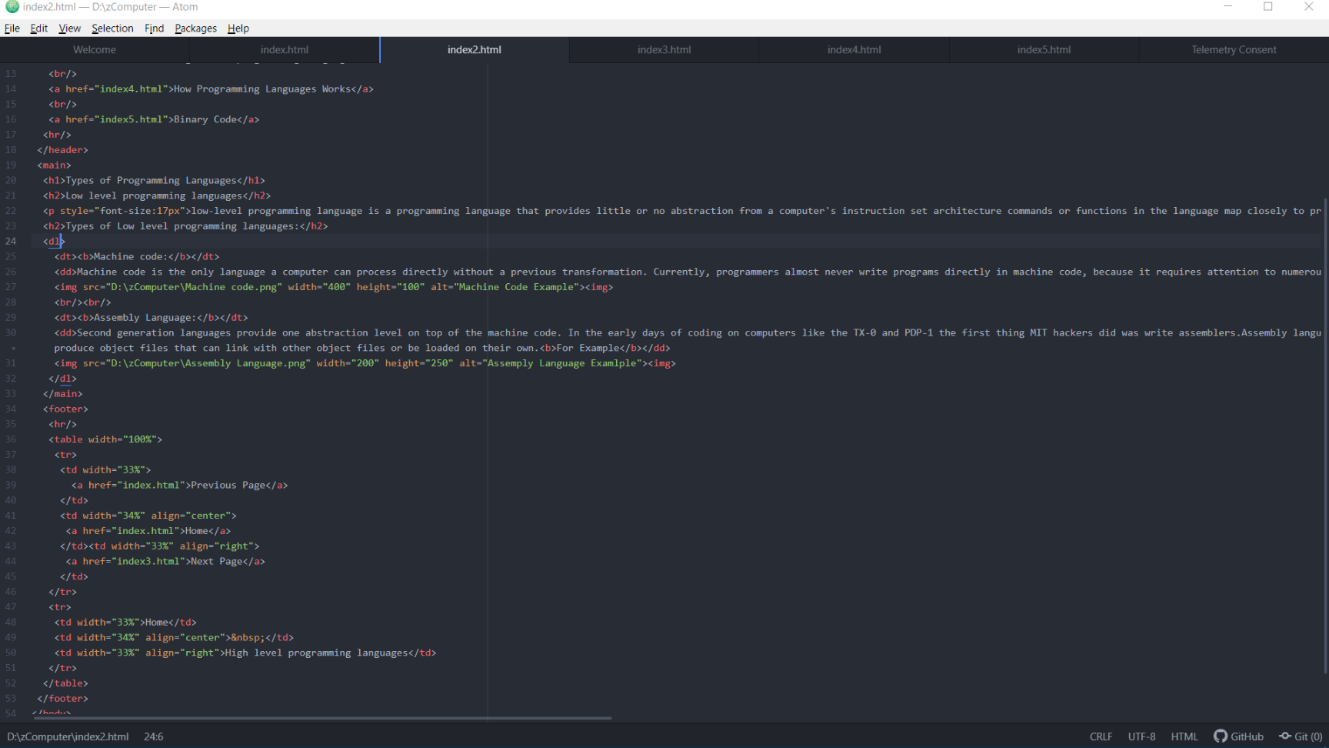


Page 3

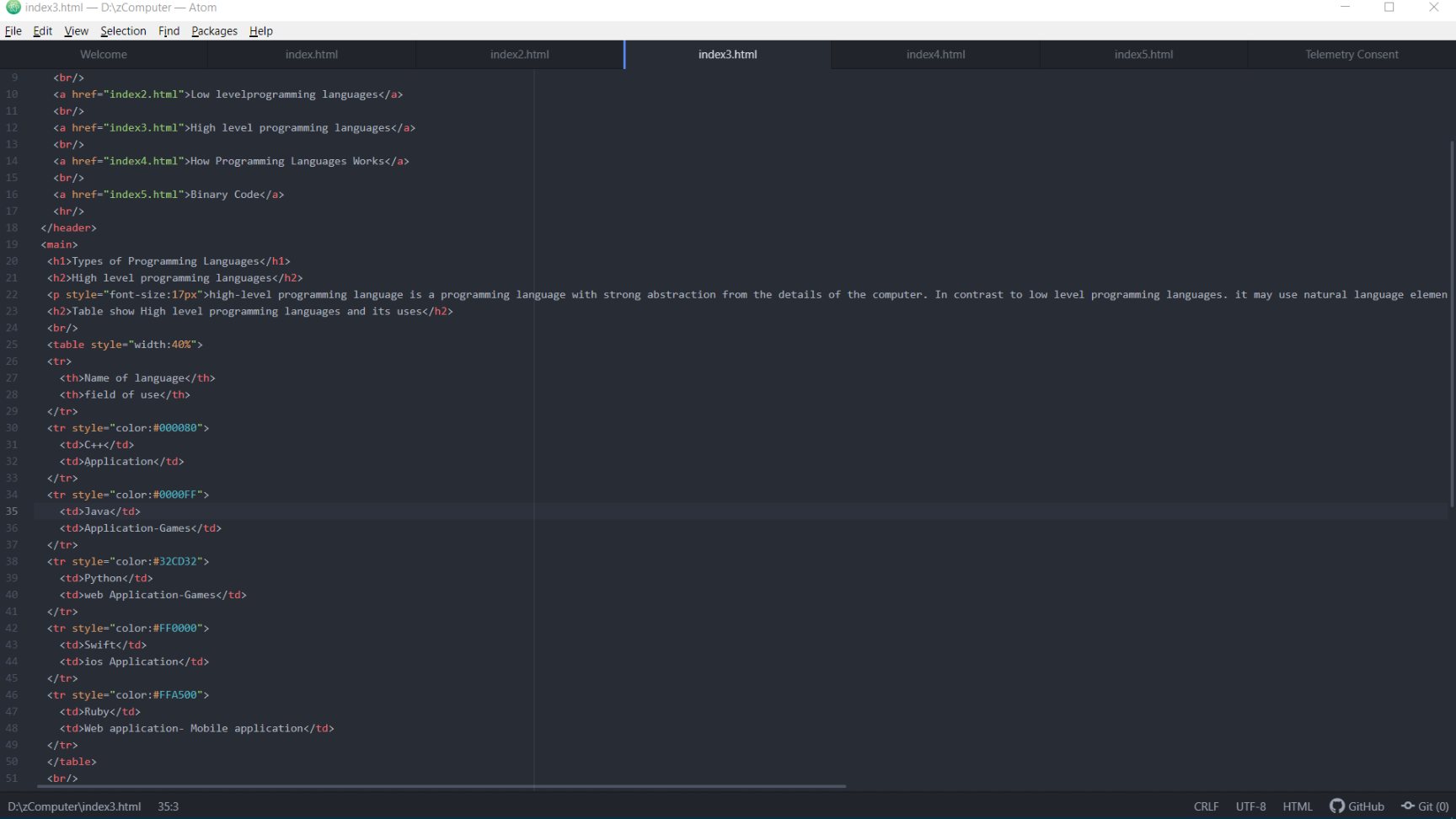
Page 4

**Screenshots of the source code**

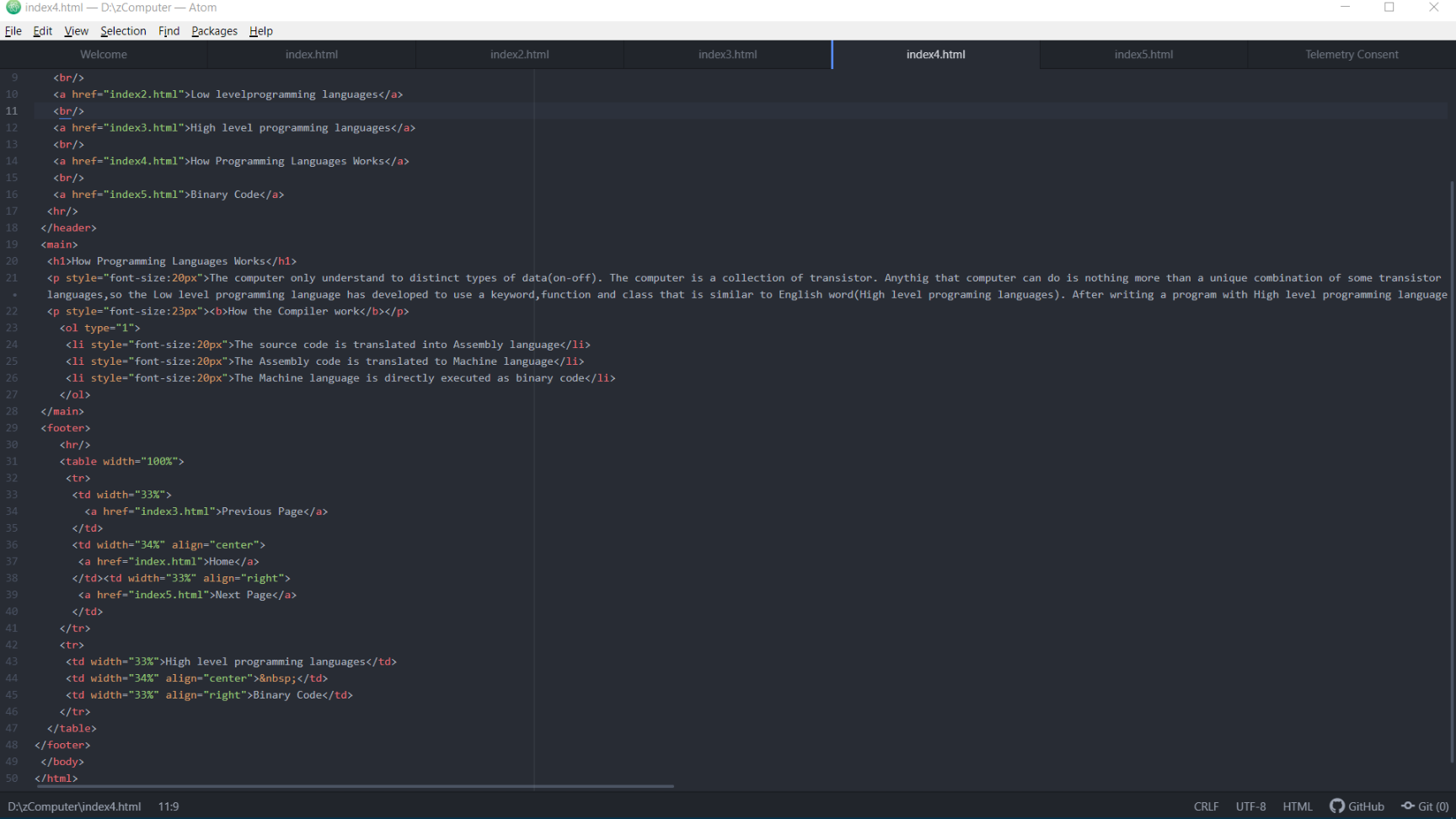
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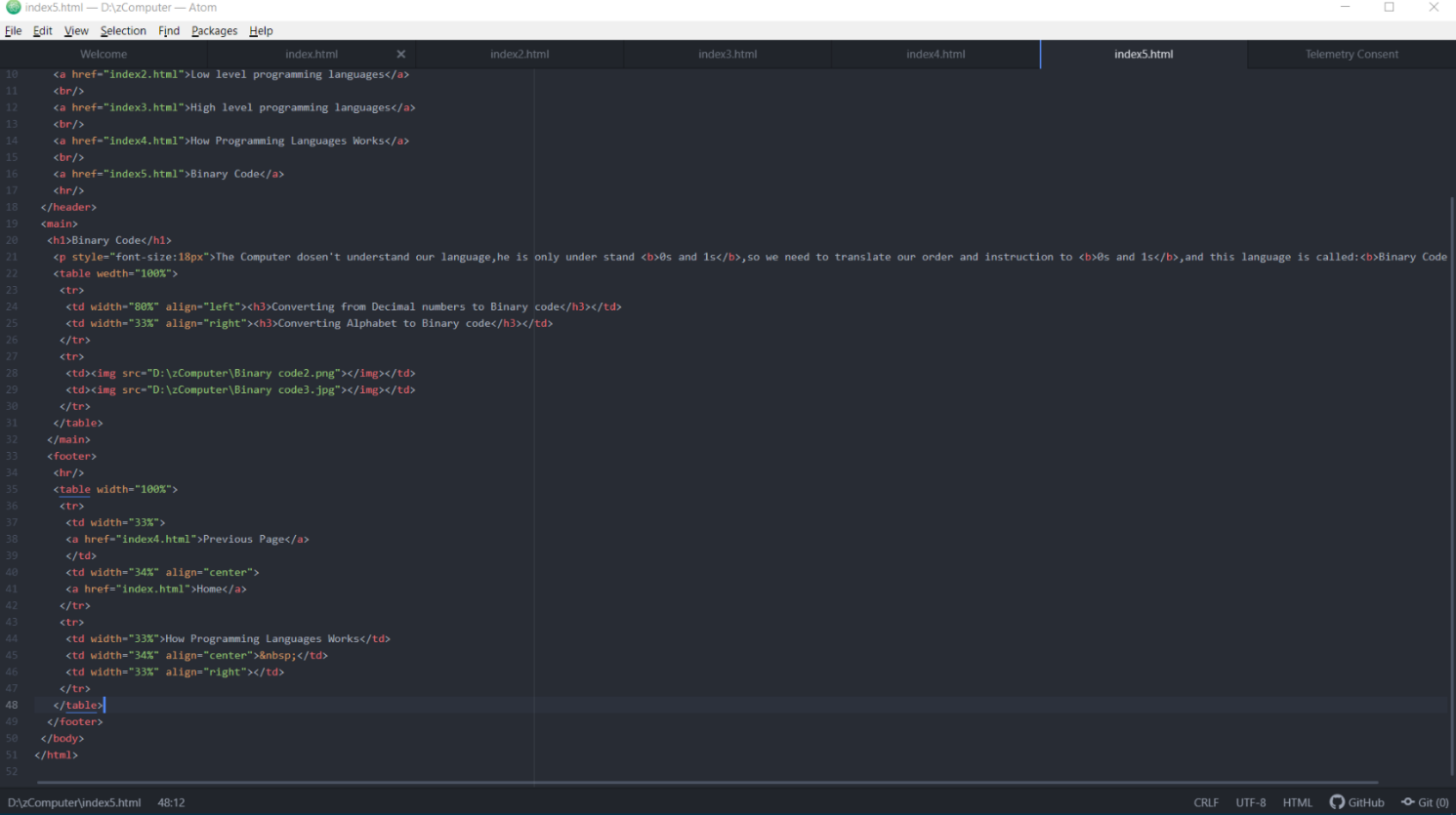
Page 1

Page 2



Page 3



Page 4