**Frontend**

1. Type domain name: browser send a message to Internet Service Provider (ISP), ISP relays the message to DNS server, then it looks up in its database to find exact IP address of the one you type. The IP address will be sent back to browser. Then you can send direct request to that IP address through ISP. This request can be delivered via Internet Backbone.

2. Website: (1) HTML: structure of the website; (2) CSS: styling the website; (3) JS: allow website to do things.

3. Javascript: interpreted language, slow, execute all instructions line by line. It is one language that is supported by all of the major web browsers; Java: compiled language, fast.

4. JS syntax: variable-var; define function: function test(b) {var a = 1; return a + b;}, because JS is script language, its syntax is similar to Python; print: console.log(a);string length: s.length; slicing: s.slice(0, 1), similar to Python slicing; casting: s.toUpperCase(); decimal division is not rounded; random number: var n = Math.random(); logic operator: ===, !==, triple equal sign checks data type while bi-equal sign does not check; control statement: if (a === b) { c = a + b;}

5. syntax 2: var a = [b,c,d,e];array size: a.length; find out whether an element is in an array: a.includes(b), return boolean; add element to the array: a.push(b); loop: while(){}, for(i=0;i<2;i++){}

6. document object model (DOM): document.getElementById()/getElementByClassName(), document.querySelector(), document.querySelectorAll().

7. object, constructor function: function object(a, b,c) {this.a = b; this.b = b; this.c = c;}

8. define function in an object: var object = {move: function() {…}}

9. jQuery is a library to be used in web development, which simplifies the code in JS. jQuery should be placed where before JS in the body tag.

**Backend**

1. Why Node.js? allow us to build the backend using JS. It allows us to take JS out of the browser and liberates it, allowing it to interact directly, interacting directly with the hardware of the computer.

2. NPM-node package manager

3. Express: Node framework. Similar to jQuery to JS. Simplify the codes in Node

4. nodemon: automatically start and close server based on the change in your JS code.