

11. Launching your website (deployment)

11.1 The three main components needed for a website to go live

- **Deploying or going live involves three main components**
 - **Code base (html, css, img, js)** = In your website's case, this is the template you buy and customize
 - **Server** = this is a remotely located computer where you put your code on to be accessed by the public. You will need to rent a server and You will need to transfer the code to the server
 - Visit this website to rent server: <https://www.hostinger.com/>
 - **Domain name** = Domain is a name/address of the server (computer) that has your website code. A domain name is the letters and numbers that form a website address on the internet that can be used to locate the computer that has your HTML code. A detailed explanation is provided later in this note.

11.2 How do we set up a hosting server?

- **What is a hosting server?**
 - A server is a computer that stores, sends, and receives data. In essence, it "serves" something else and exists to provide services. It is simply a computer with server software installed.
 - The job of a server computer is to wait for a request and send the proper response up on request. Imagine you need to eat some food, you will need to go the fridge to get it, so the fridge will be your server to store all the food (files) inside, while you are the client that wants to get food (information) to consume.
 - There are different kinds of servers, their difference is determined based on the kind of software installed on them. Let's look at some of the kinds of servers and the software installed on them:
 - Web server is a computer or collection of computers used to deliver web pages and other content to multiple users. Its main job is to establish a connection between a server and the browsers of website visitors. A web server receives your request to access a web page. It runs a few security checks on your HTTP request and takes you to the web page. A few

renowned web servers are Apache, Node.js, IIS, Nginx and Microsoft web server.

- Application server is a server where applications can run. Examples of application servers include PHP and JAVA
- Mail server's basic function is to store and sort e-mails. Mail server is our real-life post office, the server will handle e-mails going out and coming in. Examples of mail servers include Webmail (Web-Based Email) Servers and POP3 Servers
- Domain name server is in charge of storing a database of different domain names, network names, Internet hosts, DNS records and other related data. The server will translate a domain name into its respective IP address, example when you type google.com, it will translate to IP address 8.8.4.4 which computer can understand.
- Database servers is a computer system that provides clients to retrieve data stored centrally. It is usually done by executing a query using a query language specific to the database. For example, Oracle, Microsoft SQL, MySQL, MongoDB are examples of database server software.
- Mail servers

11.3 Why is it not recommended to host your own website?

- **Self-hosting not recommended because:**
 - You need to maintain it consistently. For example, you need to keep on top of software updates
 - It is more expensive
 - It can create security risks and your website will be more vulnerable for hacking
 - It is less reliable when it comes to options for dealing with service outage or downtime. Your computer needs to be on and connected to the internet 24/7
- **If self-hosting is not a good idea, what should you do?** The Alternative is to choose a hosting server that best fits your need, compare the pricing and rent.

11.4 How to choose the best web hosting plan according to your need

- There are various reliable companies providing hosting service. These companies have different hosting plans and below, you will see the most common server type or server plans.
 - **Shared server:** Multiple users share the same server/computer, and the server is administered by the host provider. If a hacker has access to one website, it leaves other websites on the server vulnerable as well
 - **VPS (Virtual Private Server):** Multiple users using the same server computer but in a way that they have dedicated access to the portion of the server they use. Even if the computer is one, it runs multiple operating systems. In VPS, you are responsible for administering the server.
 - **Dedicated server:** here, your website has one dedicated server/computer, however, you are responsible for administering your dedicated server.
 - **Cloud hosting:** A cluster of computers working together to host your site. Cloud hosting makes applications and websites accessible using cloud resources. Unlike traditional hosting, solutions are not deployed on a single server. Instead, a network of connected virtual and physical cloud servers hosts the application or website, ensuring greater flexibility and scalability. The host company manages the cloud. Your files get moved from place to place as needed. But your access credentials remain the same
- Resource available to you when renting a server include
 - Disk space
 - Bandwidth (for simple sites with very little number of visitors, a 2 to 3 GB of bandwidth per month is good enough)
 - Price for renting server
 - Reliability and speed of access (Uptime/ the total duration for which a server is fully functional and running)
 - Technical support
 - Free SSL (SSL is a security protocol that creates an encrypted link between a web server and a web browser. Companies and organizations need to add SSL certificates to their websites to secure online transactions and keep customer information private and secure.)

- Control Panel (web server control panel is an online interface that allows you to control different aspects of your web server.)
 - Features to create FTP account using your hosting server account
- For smaller sites like your resume website and restaurant sites, the cheapest hosting service should be good enough.
- If you are hosting a site with high traffic to it, VPS or dedicated servers with higher bandwidth limits might be the best options.
- If reliability is top priority, cloud hosting is the best option
- Recommended video to watch to choose the best hosting server:
 - <https://www.youtube.com/watch?v=4COpHzXAwIU>
- For your portfolio website, we recommend that you rent hosting service from Hostinger (<https://www.hostinger.com/>)

11.5 Accessing and exchanging website files with your hosting server

- Usually, the computer that you use to host your website and the one you use for development are different computers. They are also often located in different locations. Therefore, you need a way to transfer your website files to the remotely located server computer. The way we normally do this is by using an FTP client.
- **FTP client (definition):** Just like a browser is a software written by following the HTTP protocol to help us send and receive HTTP messages, An FTP client is also a software that follows the FTP protocol and helps us upload, download, and manage files from our computer to the server.
- Recommended FTP clients to use:
 - Cyberduck (download cyberdeck here: <https://cyberduck.io/>) = We recommend that you use Cyberduck for this course, but it is also possible to use anyone of these applications.
 - FileZilla
 - WinSCP
 - Transmit
- For further explanation on how to use CyberDuck, watch the following video. Please note that software and applications get updated and there might be features you see in the videos we recommend but are no more available. Watching the

videos, we recommend will give you the general gesture on the software. You are always encouraged to research on your own.

- <https://www.youtube.com/watch?v=UYDWOvyzoAQ&ab>
- **Transferring your website files to the server computer**
 - This is just a straightforward step of copying all the files to the server
 - Make sure your index.html file is in the root directory of your hosting server
 - Root directory is the publicly accessible base folder of our host server. This is the directory where your web server software is configured to look for the index file
 - It is for this reason we name our entry html page as index.html
- There is a class demo on how to transfer your website files to the server

11.6 How to connect a domain name to your server (demo)

- **Launching your website/deployment:**
 - Traditionally, what is referred as launching a website is the last step of redirecting the domain name to the hosting server address.
 - As a developer, deployment is the whole process of preparing your hosting environment, putting all the necessary files on the server and connecting your domain with the server
- **What is a domain name?**
 - A domain name is a name/address of the server (computer) that has your website code. A domain name is the letters and numbers that form a website address on the internet that can be used to locate the computer that has your HTML code. Domain names are limited and registered by an international organization called ICANN.
 - Every device that is connected to the internet has a unique number assigned to them by a global authority known as IANA (Internet Assigned Numbers Authority). Giving this number has its own rules that is mainly dependent on the geographical location. Ex: 46.17.175.65. But these numbers are not human friendly to remember. For that reason, ICANN manages the

assigning of a human friendly name to the IP addresses. This human friendly name is what we call a domain name.

- There are many domain name agents who are licensed by ICANN to sell domain names. What these agents do is, they check if the name you are trying to register is taken or not. If available, they send your request to ICANN to officially register the name on your behalf. Remember, a domain name is a name given to an IP address. Initially these agents register an IP address that they own to the name. Then they provide you a way to change the IP address later. Example of how changing of the IP address into your domain name:
 - 46.17.175.65 => evangadi.com
 - Evangadi Server: 71.127.44.345 => evangadi.com
 - ICANN has lincensed Godaddy and Google domain to give domain name
 - IP address 46.17.175.65 => evangadi.com (\$12)
 - DNS Configuration Area => IP address 71.127.44.345 => evangadi.com
- **How do you buy a domain name?** There are some reliable companies who provide a very efficient way to manage your domain. Google Domains and GoDaddy are the most known ones. We recommend that you buy domain name for your website from Google Domains because whenever you visit a website, your computer performs a Domain Name System (DNS) lookup. Websites integrated with Google Domains use the same DNS servers as Google so that your domain can connect quickly and reliably to your website. Buying a domain name is as simple as following these two steps:
 - **Step 1:** Visit <https://domains.google/> to buy your domain name.
 - You will need to login to your Gmail account
 - **Step 2:** Check if the domain name you want to buy is available or not already taken
 - Better to go with a .com one

- Make sure the domain name you choose is related to the purpose your website has. In your portfolio website case, it is advised that you use your first and last name as your website's domain name.
- **Step 3:** Pay the agent company to register it with ICANN. You now own the domain name after this
- **Step 4:** DNS configuration (once you purchase your domain name, make sure to change the DNS to point to the server computer that you will rent.)
 - **Get the IP address of your host server.** You can get this from your hosting provider
 - **Add the IP address as an "A" record on your DNS configuration area.** An A record is short for Address record, and it maps from an IP address to a domain name. Unless you change this, the domain registrar is the one that manages your DNS too . Simply put, you add the IP address of the host server in your Google Domain's DNS so that your domain name goes to the IP address of the server computer.
 - **Additional setups**
 - **Configure CNAME record:** CNAME stands for canonical name and is used to create an alias from one hostname to another. Ex: www.domain.com is different from domain.com. For both www.domain.com and domain.com to work to access our website, we need to add the www.domain.com one as a CNAME
 - **Configure mail exchanger records:** Allows you to control the delivery of mail for a given domain. You need to direct email from your domain to the Google Workspace servers. It's like registering your new address with the post office when you move so that they deliver your mail to the right place.

11.7 Setting up Hostinger (class demo)

11.8 Transferring website files to your server (class demo)

11.9 Launching your website (class demo)