2.1.   Internet

Between <u>1965</u> and <u>1969</u> the United States <u>Department</u> of <u>Defense</u> developed the ARPAnet (<u>Advanced</u> <u>Research</u> <u>Projects</u> <u>Agency</u>), a <u>secure</u> <u>Communicatios</u> <u>Network</u>, that worked <u>even</u> if one of its <u>nodes</u> failed. Back then, <u>nobody</u> really thought that it would <u>evolve</u> to the <u>internet</u> of nowadays, a <u>service</u> we can <u>access</u> from anywhere using our <u>tablets</u>, <u>mobile phones</u> and personal computers, and that already allows us to <u>interact</u> with everyday <u>objects</u>.
But in this <u>rapidly</u> evolving <u>context</u>, the need for <u>security</u> in all its different forms is <u>becoming</u> of great importance.

2.1.1.   Internet basics

- A <u>network</u> (*red*) is <u>two</u> or more <u>computers</u> connected to one another (<u>copper wire</u>, optic fibre, <u>wireless connections</u>, etc) that can share documents, files, printers, etc.
- Internet is a huge <u>network</u> of <u>networks</u> interconnected <u>worldwide</u>.
- On the internet you can access the World Wide Web (= enormous <u>collection</u> of <u>websites</u>).
- A <u>browser</u> (*navegador*) (i.e. Internet Explorer, Mozilla Firefox, Google Chrome,...) is a <u>program</u> that finds and opens the websites or web pages. The **URL** **address** of a website indicates its exact <u>location</u>.
- A <u>search engine</u> (*buscador*) (i.e. <u>Google</u>, Yahoo, Ixquick, ...) is a <u>website</u> that enables us to find <u>contents</u> of web pages according to <u>keywords</u>.
- A <u>server</u> is a computer prepared to provide <u>uninterrupted</u> services <u>simultaneously</u> to lots of <u>users</u>.
- In the <u>inmediate</u> future not only people, but everyday <u>things</u> will be connected to the <u>internet</u>, so we can <u>interact</u> with them. This next revolution is called <u>intenet of things</u>.

<u>How internet works</u>

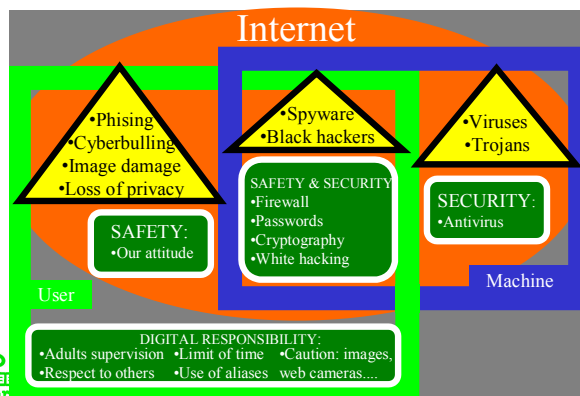| Step	Location in the network	Description
1st	A →	Users computer: • Typing URL web address in the browser
2nd	B →	• Information of web address we want to visit
3rd	C →	Router: • applies the TCP/IP (transfer control protocol / Internet protocol)
4th	D →	• Packets of information according to TCP/IP
5th	E →	Internet Service Provider (e.g.: Movistar, Jazztel, Ono....): • Checks your physical location • Assigns you an IP address (internet protocol address) • Access to Internet
6th	F→, G →	• Information (TCP/IP) including your IP address
7th	H → , H →	Domain name system server: • Uses a data base to "translate" human readable addresses (e.g. https://www.google.es) into binary identifiers (e.g. 64.233.189.104) in order to locate and address servers worldwide
8th	G →, I →	• Information is sent to the server that host the web page
9th	I →, F →, E →, D →, C →, B →,	• Information that make up the website (TCP/IP) • Travels back over the network along the quickest path
10th	A →	Users computer: • The browser reassembles the information and displays the web page.

INTERNET MAP OF RISKS AND SOLUTIONS REGARDING USERS AND MACHINES

2.1.2.   Safety, security, responsibility

2.2.   Web pages

2.2.1.   Web pages basics

- **Web page** = Document build with <u>HTML</u> (the extension of the file is "**html**" or "**htm**", e.g. "example.htm"),

Internet

•Phising
•Cyberbulling
•Image damage
•Loss of privacy

SAFETY:
•Our attitude

•Spyware
•Black hackers

SAFETY & SECURITY:
•Firewall
•Passwords
•Cryptography
•White hacking

•Viruses
•Trojans

SECURITY:
•Antivirus

User

Machine

DIGITAL RESPONSIBILITY:
•Adults supervision •Limit of time •Caution: images,
•Respect to others   •Use of aliases web cameras....

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containig text, photos, buttons, icons, animations, hyperlinks, multimedia, graphics, tables, etc.
- **HTML** = **H**iper**T**ext Markup **L**anguage, is the language used to build web pages.
- Website = Series of linked web pages that can be accessed from a common address.
- **Elements of a web page**: header, brand or logo, navigation menu, title, content and footer.

Classification of web pages

Type of web page		
	Static	**Dynamic**
Content	• Always the same	• Different depending what the user does
Language	• HTML	• HTML combined with dynamic languages
Example	• Information webs, Wikipedia...	• Search engines, Youtube, Facebook, ...

How web pages work
- **Designer and developers**: create websites.
- **Webmasters**: update and maintain the website on their computers (local site) and transfers them to the server (remote site).
- **Servers**: Are computers that host the remote site, making them available to the users.

2.2.2.   Publishing tools

- www = World Wide Web.
- Web 1.0 = 1st generation of www, where users were limited to view content.
- Web 2.0 = 2nd generation of www, where users also generate content, allowing them to interact and collaborate with each other.
- Web 2.0 publishing tool = Tool for non-expert to generate content in WWW.
- CMS = Content management system, web publishing tools for web pages.
- Blog = Website consisting of discrete, often informal diary-style text entries ("posts") displayed in reverse chronological order (most recent at the top).

Web 2.0 Publishing tool	Generated content	Example
CMS	• Websites, blogs	• Wordpress, Google sites, Blogger
Wiki	• Discussion website editable by any user	• Wikipedia
Photo, video and audio hosting portals	• Websites for uploading images, video and audio files	• Google Photos, Flickr, Youtube, SoundCloud
Social networks	• Personal page within the same network	• Facebook, Twitter, Instagram
Online office automation	• Wordprocessor, Presentation, etc.	• Google drive

2.2.3.   HTML

- HTML describes the structure of a webpage only with text (source code), making reference to the locationof external elements (photos, videos...).
- Browsers render the documents writen with HTML into multimedia web pages independently of the device features (PC, tablet, mobile phone...).
- To see the HTML code of web page, right-click and select 'view page source' ('ver código fuente').

HTML tags
- HTML markup consists of "printing instructions" in form of tags (etiquetas).
- Tags are written inside angle brackets (corchetes angulares) and most commonly come in pairs like <p> (opening tag) and </p> (closing tag; always with a slash).

HTML elements
- The set of the opening and closing tags and the content between them is called element.
- The properties of the element appear as attribute-value pairs, separated by "=" and written within the opening tag (e.g. <p align="right"> Content </p>, refers to 'a paragraph aligned to the right')

HTML documents
- HTML documents imply a structure of nested (anidados) HTML elements.
- HTML documents have two main parts: header and body.