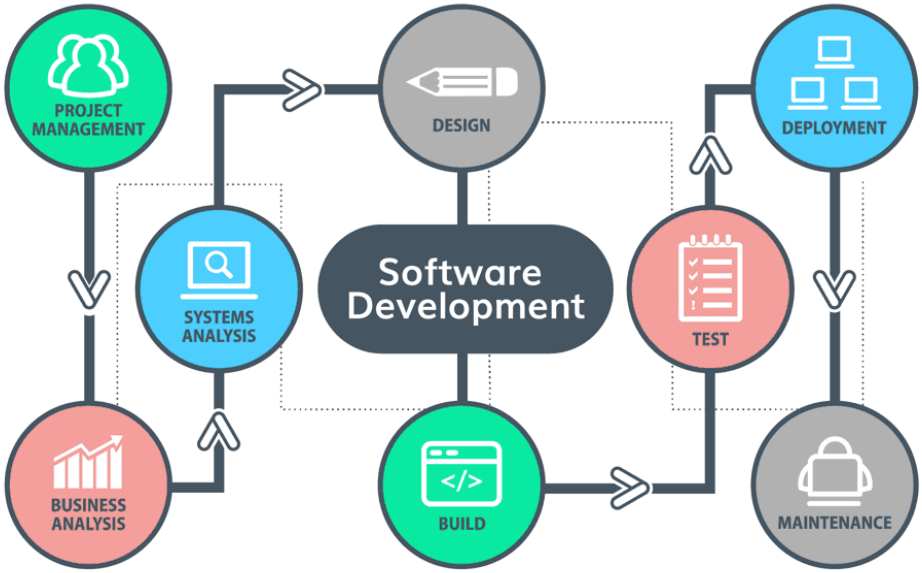
UD01 exercises



1. Exercises

1. Define the concepts of hardware and software. Give three examples of each.
2. Find out the definition of software from the RAE.
3. We download the following software: a bar in our browser that helps us translate words, with the particularity that it shows us dictionary ads from time to time. What type of license does the software have?
4. Explain the accuracy of the following statement: "The software license will be established by the users who will establish it according to the developer of the program."
5. Define software license, free software and proprietary software.
6. Mark the true option of the following

   a. The GPL license gives the right to use the program without the option to modify it.

   b. The GPL license requires modifying the program.

   c. The GPL license allows modified versions of it to be made public.

   d. They are all false.
7. Mark the true option of the following
   a. A program can be freeware and shareware at the same time.
   b. A program cannot be shareware and adware at the same time.
   c. A Softonic program is always adware.
   d. Not all free software is freeware.
8. What is a program?
9. Explain the accuracy of the following statement "A program can be made in Spanish and run by the computer."

2. Licenses Comic

1. Read the explanatory comic about SW licenses. Comic
2. Answer the following questions:
    1. What is a License?
    2. What laws are used to regulate the creation, distribution and trade of software?
    3. What happens if a user does not accept the conditions of a license for a program they have purchased?
    4. What is the difference between free software and proprietary software?
    5. Is Windows free or proprietary software?
    6. Sort the following proprietary software from highest to lowest limitation.
        1. Freeware
        2. Payment
        3. Shareware
        4. Demonstration
    7. What is demo or trial software?
    8. What is shareware software? What happens after a while with this type of software?
    9. What is freeware?
    10. Can free software be paid?
    11. What basic freedoms does free software guarantee?
    12. What is the GPL license?
    13. What are the benefits of Free Software?
    14. Search the internet and define briefly in your own words:
        1. Copyright
        2. Copyleft
        3. Patent
        4. CLUF
        5. LGPL
        6. GNU/Linux
3. Make a classification of the following SW licenses based on the Copyright they imply, and another based on the Sale Price of the same.

    Free Sw / Proprietary Sw / Freeware / Commercial Sw / Shareware

3. Activities

3.1. Introduction

1. Define the following concepts:
    1. Source code.
    2. Object code.
    3. Executable code.

3.2. Software life cycle

1. Define "Software life cycle".
2. Name the main phases of software development and briefly explain what is done in each of them.
3. Briefly explain what the waterfall model is when we talk about software development.
4. Advantages and disadvantages of the cascade model.
5. What is meant by verification? And by validation?
6. Explain how the development model works through prototyping.
7. Explain how the spiral model works when applied to object-oriented development.
8. What four principles govern agile development expressed in the Agile Manifesto?
9. What is a user story? Check the following link: https://es.wikipedia.org/wiki/Historias_de_usuario
10. Make a summary about what is meant by Lean software and what principles govern it. Check the following link: https://es.wikipedia.org/wiki/Lean_software_development
11. KANBAN. Study the advantages and disadvantages of having a digital web board for the Kanban methodology. You can check the following links:
    https://leankit.com/learn/kanban/kanban-board/
    https://trello.com/es
    https://taiga.io/
    https://kanbantool.com/es/
12. KANBAN. Make a summary of the Kanban methodology and indicate its differences compared to SCRUM. You can check the following link:
    https://es.atlassian.com/agile/kanban
13. SCRUM. Explain how Scrum works. Check the following links:
    https://proyectosagiles.org/que-es-scrum/
    https://proyectosagiles.org/como-funciona-scrum/
14. SCRUM. Define the following terms:
    Product backlog.
    Sprint backlog.
15. SCRUM. In Scrum terminology what terms are used synonymously with:
    Project manager.
    Customer.
    Development team.
16. SCRUM. Make a summary of the requirements to be able to use Scrum. Check the following link:
    https://proyectosagiles.org/requisitos-de-scrum/
17. XP. Explain the 5 values of Extreme Programming.
18. XP. What are the distinguishing features of XP versus other agile methodologies? Explain them. You can check the following link:
    http://www.davidvalverde.com/blog/introduccion-a-la-programacion-extrema-xp/

3.3. Programming languages

1. What is the difference between declarative and imperative languages? Name at least 2 of each type.
2. Explain what compiling is? Explain what is interpreting?
3. Advantages of compiled languages.
4. Advantages of interpreted languages.
5. Name 2 compiled languages and another 2 interpreted.
6. Can the bytecode generated in Java after compilation be considered object code? Explain the answer.
7. Give an example of language of the following types:
    - Low level.
    - Medium level.
    - High level.
8. What programming paradigm do the following languages follow?
    - C
    - C++
    - SQL
    - Java
    - Javascript
    - Lisp
    - Prolog

    You can check the following link:
    https://es.wikipedia.org/wiki/Paradigma_de_programaci%C3%B3n
9. Explain what criteria can be followed when choosing a programming language for software development.

4. Information sources

- Wikipedia
- Code&Coke (Fernando Valdeón)
- Apuntes IES El Grao (Mª Isabel Barquilla?)
- Apuntes IOC (Marcel García)
- Apuntes José Luis Comesaña
- Apuntes IES Luis Vélez de Guevara 17-18 (José Antonio Muñoz Jiménez)