

**Activities Document**

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## Lifecycle

## Definition

In software engineering, the cascade feedback development is identical to the pure cascade model, but with an important feature, which is feedback, it offers the opportunity to make changes or evolutions during the software's life cycle, allowing a backward movement stage to the previous one or even be able to jump to previous ones if required. (Rodriguez, 2012)

## Phases

* **Analysis of the requirements of the software:** The process of compiling the requirements is focused and intensified especially in the software. The software engineer must understand the scope of software information, as well as the function, performance, and interfaces required.
* **Design:** Software design focuses on four different attributes of the program; the structure of the data, the architecture of the software, the procedural detail and the characterization of the interface. The design process translates the requirements into a representation of the software with the required quality before the coding begins.
* **Implementation:** The design must be translated into a legible form for the machine. If the design is done in a detailed way, the coding can be done mechanically.
* **Tests:** Once the code has been generated, the program test begins. The test focuses on the internal logic of the software and external functions, performing tests that ensure that the defined input produces the results that are really required.
* **Maintenance:** The software will suffer changes after it is delivered to the customer. The changes will occur due to errors being found, to the software having to adapt to changes in the external environment (operating system or peripheral devices) or to the client requiring functional or performance extensions.

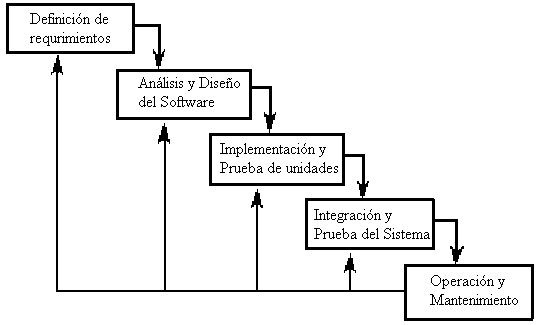


Figure 1 Waterfall model feedback

## Advantage

* It allows departmentalization and management control.
* The schedule is established with the terms normally adequate for each stage of development.
* This process leads to delivering the project on time.
* It is simple and facilitates project management.
* It allows to have the project under control.
* Limit the amount of interaction between teams that occurs during development.

## Disadvantages

* The results and improvements are not progressively livable.
* Little time to correct complicated debugging failures.
* Changes introduced during development can confuse the professional team in the early stages of the project.
* The process is slow and heavy.

## Justification

We consider that the life cycle that best adapts to the project to be carried out is the feedback cascade model, it contains the same stages as the pure cascade model, thanks to this the software will not lack quality because its sequential stages lead us to the achievement of a good project, each one of them adapts perfectly to the type of project that we will carry out since it is a small project in functions and in time for what we do not consider necessary to use an evolutive or agile model. In addition, this model will allow us to have under control the project and we have the opportunity to return to one or several stages behind to make the necessary and sufficient changes to meet the client's requirements.

# Table of activities

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the activity | | | Description of the activity | Responsible of the activity |
| Initiation | | | | |
|  | Initial act | | Generate a document that includes:   * Purpose of the project * Project description * Scope * Goals * Deliverables | Jonathan Jair Alfaro Sánchez |
| Planning | | | | |
|  | Budget worksheet | | Generate a document that allows recording costs by resource (personnel, materials, indirect expenses, licenses, etc.) to then total them and obtain subtotals for work areas and the total project. | Jonathan Jair Alfaro Sánchez |
|  | Deliverables | | Generate a document in which all the deliverables that will be included in the project are displayed, as well as those that will be excluded from it. | Jonathan Jair Alfaro Sánchez |
|  | Milestones | | Generate a document in which the start and end dates are visualized by stage of the project, which will be reviewed as the project progresses. | Jonathan Jair Alfaro Sánchez |
|  | Work breakdown structure (WBS) | | Generate a work breakdown using software that allows it to do so. In this structure you should see the activities of the entire project, duration, start and end date, the person responsible for the task, among other elements. | Jonathan Jair Alfaro Sánchez |
|  | Communication plan | | Generate a document that includes the policies, strategies, resources, objectives and communication actions, both internal and external, necessary to carry out for the project.  In summary, it’s intended to answer some of the following questions:   * What is there to say? * Who should say it? * To who? * Through what means and how often? | Jonathan Jair Alfaro Sánchez |
|  | Quality plan | | Generate a document that specifies what procedures and associated resources should be applied, who should apply them and when they should be applied in the project. | Jonathan Jair Alfaro Sánchez |
|  | Scope statement | | Generate a writing that allows us to define the limits and the expected results of the project, as well as identify the restrictions, assumptions and key success factors. | Jonathan Jair Alfaro Sánchez |
|  | Life cycle selection | | It consists of the selection of one of the many life cycles that exist, it is useful to be able to structure and correctly organize the activities to be carried out throughout the project. | Jonathan Jair Alfaro Sánchez |
| Analysis | | | | |
|  | Evaluate requirements providers | | Identify the people who will provide the necessary information to develop the project, as well as evaluate that these people are the correct ones. | Mary Carmen Crescencio Bernal |
|  | Selection of data collection technique | | It consists of selecting a data collection technique, this technique will be used by the analyst to develop the information systems. | Mary Carmen Crescencio Bernal |
|  | Interview | | It consists of the application of the previously selected technique. The interview is a directed conversation, with a specific purpose and using a question and answer format. | Mary Carmen Crescencio Bernal |
|  | **Definition of requirements** | | | |
|  |  | Functional requirements | Define the necessary declarations that allow us to know the services that the system will provide, the way in which it will react to particular entries. In some cases, the functional requirements can also declare what the system should not do. | Mary Carmen Crescencio Bernal |
|  |  | Non-functional requirements | Define the necessary declarations that allow us to know, unlike the functional requirements, those aspects of the system that do not have a direct relation with the behavior of the same. They can often define visual aspects, restrictions such as response time, accuracy, resources consumed, security, etc. | Mary Carmen Crescencio Bernal |
|  | Specification of software requirements (SSR) | | Generate a document with a complete description of the behavior of the system, which must include the functional and non-functional requirements defined above. | Mary Carmen Crescencio Bernal |
| Design | | | | |
|  | **UML Diagrams** | | | |
|  |  | Use case diagrams | Generate usage case diagrams, which allow us to represent, analyze and document the functional requirements of the software. | Miguel Ángel Mandujano Barragán |
|  |  | Sequence diagrams | Generate sequence diagrams, which allow us to visualize which objects communicate with which other objects and which messages trigger those communications. | Miguel Ángel Mandujano Barragán |
|  |  | Class diagram | Generate the class diagram that will allow us to graphically represent the general structure of a system, showing each of the classes and their attributes and methods, as well as their interactions (such as inheritances, associations, etc.). | Miguel Ángel Mandujano Barragán |
|  | **Database** | | | |
|  |  | Diagram Entity-Relationship | Design the ER diagram of the database, which illustrates how entities relate to each other within a system. Said diagram represents the entities, relations and their attributes of the database. | Miguel Ángel Mandujano Barragán |
|  |  | Relational diagram | Generate the relational diagram of the database which allows to visualize the tables, primary and foreign keys, the fields and their type of data required. | Miguel Ángel Mandujano Barragán |
|  | Navigation map | | Design the navigation map for the website based on the client's requirements. | Miguel Ángel Mandujano Barragán |
|  | Sketches | | Generate the sketches of the website that allow us to visually represent, in a very simple and schematic way, the structure of the web pages that will make up the site.  The objective of these is to define the content and position of the different blocks of your website. This includes navigation menus, content blocks, etc. | Miguel Ángel Mandujano Barragán |
| Development | | | | |
|  | Database | | Create the database based on the diagrams made in the design stage. | Jonathan Jair Alfaro Sánchez |
|  | Layout | | Transform the design embodied in the sketches to a set of files (html, css, js) capable of being reproduced by web browsers. | Miguel Ángel Mandujano Barragán |
|  | **Websites** | |  |  |
|  |  | Index | Develop the main page of the website, which should be the most striking to attract users. | Miguel Ángel Mandujano Barragán |
|  |  | Products | Develop a product page that allows to show information about the products that the company offers. | Giovanni Misael Alfaro Sánchez |
|  |  | Saucers | Being an edible product, this page will contain suggestions of some dishes that are best accompanied with a certain sauce of which the company offers. | Miguel Ángel Mandujano Barragán |
|  |  | Know us | Develop a page that gives to users information about philosophy of the company. | Giovanni Misael Alfaro Sánchez |
|  |  | Orders | Develop an order page, which allows users to order the product that the company offers. | Jonathan Jair Alfaro Sánchez |
| Testing | | | | |
|  | Unit tests | | Perform the necessary tests to verify the correct functioning of a code module. This is to ensure that each of the modules works properly separately. | Giovanni Misael Alfaro Sánchez |
|  | Module tests | | Perform the integration tests necessary to verify that a large set of software parts work together. | Giovanni Misael Alfaro Sánchez |
| Implementation | | | | |
|  | Hosting selection | | It consists of the selection of a hosting service that allows to have the website on the internet. | Miguel Ángel Mandujano Barragán |
|  | Upload the website | | Once the hosting is selected, upload the website to said hosting. | Miguel Ángel Mandujano Barragán |
|  | System tests | | Once uploaded, tests must be performed on the entire system to let us know that it is still working correctly. | Giovanni Misael Alfaro Sánchez |
| Closing | | | | |
|  | Acceptance letter | | Generate a document that confirms that the product resulting from the project complies with the characteristics and functions that were defined at the beginning and is accepted and approved by the client. | Jonathan Jair Alfaro Sánchez |
|  | Act of closing the project | | It consists of an act that terminates all activities to complete the project, resulting in the formal completion of project work, authorizing documentation of lessons learned and release of resources. | Jonathan Jair Alfaro Sánchez |
|  | Document of lessons learned | | Document the lessons learned once a project has come to an end. This information will depend on reaching a good level of understanding of the mistakes themselves, which is very necessary for future projects, and the only way to avoid repeating the same mistakes over and over again.  It could be summarized that, among the lessons learned from a project, it is necessary to count:   * The mistakes made * The risks to which the project was exposed. * The decisions that worked best. * The processes and techniques that contributed most efficiency and effectiveness. | Jonathan Jair Alfaro Sánchez |