



Functional and Non-functional Requirements



Advisor's name: Mohammad Al Hajj

Course Name: Software Engineering

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Signature:

Instructor Notes:

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DONE BY ALI HAMED

1220024

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Overview:

The problem of waste accumulation is one of the biggest problems that any society may face. Therefore, in order to find an effective mechanism to solve this problem or even contribute to a large extent in solving it, **Clean&Green** application is the perfect project for that.

Goal:

The aim of this paper is to explain the requirements that the programmer must follow in order to achieve success for this program (**Clean&Green**).

Introduction:

One of the basic things that you must pay attention to in order to succeed in any system are the requirements.

The requirements are separated into two parts:

→Functional Requirements.

→Non-Functional Requirements.

- In software engineering and systems engineering, a functional requirement defines a function of a system or its component, where a function is described as a specification of behavior between inputs and outputs. (Wikipedia, n.d.)

However, a non-functional requirement (NFR) is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. They are contrasted with functional requirements that define specific behavior or functions. The plan for implementing functional requirements is detailed in the system design. The plan for implementing non-functional requirements is detailed in the system architecture, because they are usually architecturally significant requirements. (Wikipedia, Wikipedia, n.d.)

After a lengthy study was conducted with a group of experts and after a group of random opinions were taken from the people in order to achieve success for this project. And after doing some searches on the internet. A set of basic points have been established that the system must follow. These points are under the requirements label.

In order to achieve the best success of this project, these requirements will be sorted into sections:

- 1- The system.
- 2- The admin.
- 3- The users.
- 4- The municipalities.

Requirements gathering process details:

Interview questions:

Programmer Questions:

The questions that were asked to the programmer, Muhammad Zalalah:

Question 1: How should the program be in terms of internal form?

The program should consist of a set of independent sections that are subsequently linked in a logical manner.

Question 2: What are the sections that the program should include?

The program should include a group of sections. Each section should contain all the basic information related to it. In the case of my program, there should be a section for store, a section for conversation and another for information, and there should also be a section for the user's personal information and a section for his publications. In addition, do not forget to add a section to watch the information that is published by users on the application (like videos posts, written posts.... etc.). moreover, to what was previously mentioned, it must also take into account any additional details matter such as the admin and municipalities.

Question 3: Should the program include a set of laws and regulations that users must follow or not?

Certainly, there must be laws in order to ensure the continuity of this application and to prevent any problems that would cause inconvenience to the user and thus not to use the program by them.

People Questions:

A set of questions that were asked to some people who were randomly selected from street. After presenting and clarifying the idea of the program, questions were asked in terms of what additions the program should include, which in their opinion are important for the success of this project. The answers were as follows:

Opinion 1: The program must clearly explain how the recycling process is carried out because the majority of people do not know how.

Opinion 2: Several methods of recycling should be presented so that people do not find it difficult to implement them.

Opinion 3: the percentage of saving and profit that the user can achieve if he uses the application must be displayed to encourage people to use it and to create a logical reason for that.

Internet searches I conducted:

13 things you need to consider as a part of your mobile app marketing strategy... (Mullan, n.d.)

Design (Wikipedia, Wikipedia, n.d.)

5 Important things to consider while developing a Mobile App (Abrition, n.d.)

Functional Requirements:

The system:

1. The system should verify if the account has already been registered or not.
2. The system should provide a menu to display the program's sections.
3. The system should have the ability to access the internet.
4. The system should have a search system connected to the internet.
5. The system should have an internal search system that does not need the internet.
6. The system should provide an internal store that its users can benefit from.
7. The system should allow sales using cash.
8. The system should allow sales using credit card.
9. The system should support video playback.
10. The system should provide the ability to add publications.
11. The system should provide the ability to delete publications.
12. The system should allow its users to view some of each other's personal information.

13. The system should have the ability to decide which materials have the ability be recycled when the system users ask about it.
14. The system should have alert system.
15. The system should have a section to display information about waste problems.
16. The system should have a section to display information about how to solve the waste problems.
17. The system should have a section to display information about how to benefit from the waste to make money.
18. The system should have a section to display information about how to benefit from the waste to save money.
19. The system should implement advertisement, in order to be profitable.
20. The system should have a rating option for posts.
21. The system should provide a chat box.
22. The system should save the conversations to ensure the rights of users.
23. The system should prevent users from modifying information that is from the origin of the system and present in it when it was created.
24. The system should contain a set of rules that its users must follow.
25. The system should save the data of its users in an encrypted manner.
26. The system should prevent the user from modifying the system information.
27. The system should prevent the municipalities from modifying the system information.

The admin:

1. The system should allow the admin to sign in.
2. The system should allow the admin to sign up.
3. The system should allow the admin to see the menu of the program's sections.
4. The system should provide the admin to do search through it.
5. The system should provide the admin to have access to the store.
6. The system should allow the admin to make the sale through the store by using cash.
7. The system should allow the admin to make the sale through the store by using credit card.
8. The system should allow the admin to make a purchase through the store by using cash.
9. The system should allow the admin to make a purchase through the store by using credit card.
10. The system should allow the admin to see the videos through it.
11. The system should allow the admin to delete any video in it.

12. The system should allow the admin to add any video to it.
13. The system should allow the admin to add any written post.
14. The system should allow the admin to delete any written post.
15. The system should allow the ad admin to see some of the other's personal information.
16. The system should allow the admin to benefit from the alert system.
17. The system should allow the admin to add some options to the alert system.
18. The system should allow the admin to delete some options from the alert system.
19. The system should allow the admin to do changes to the alert system.
20. The system should allow the admin to see the information related to the waste problems.
21. the system should allow admin to add any information to the information section related to waste problems.
22. the system should allow admin to delete any information to the information section related to waste problems.
23. the system should allow admin to change any information to the information section related to waste problems.
24. The system should allow the admin to see the information related to the solutions of waste problems.
25. the system should allow admin to add any information in the information section related to the solutions of waste problems.
26. the system should allow admin to delete any information in the information section related to the solutions of waste problems.
27. the system should allow admin to change any information in the information section related to the solutions of waste problems.
28. The system should allow the admin to see the information in the system related to how waste is diverted to earn money.
29. The system should allow the admin to add information to the system related to the section of how waste is diverted to earn money.
30. The system should allow the admin to delete information to the system related to the section of how waste is diverted to earn money.
31. The system should allow the admin to change information to the system related to the section of how waste is diverted to earn money.
32. The system should allow the admin to see the information in the system related to how to benefit from the waste to save money.
33. The system should allow the admin to add information to the system related to the section of how to benefit from the waste to save money.
34. The system should allow the admin to delete information to the system related to the section of how to benefit from the waste to save money.

35. The system should allow the admin to change information to the system related to the section of how to benefit from the waste to save money.
36. The system should allow the admin to add new ads.
37. The system should allow the admin to delete ads.
38. The system should allow the admin to see the average rate for each post.
39. The system should allow the admin to add rate to any post.
40. The system should allow the admin to create a chat with users in general.
41. The system should allow the admin to add any new rule to system law.
42. The system should allow the admin to delete any rule in the system law.
43. The system should allow the admin to change any rule in the system law.
44. The system should allow the admin to modifying the system information.

The users:

1. The system should allow the users to sign in.
2. The system should allow the users to sign up.
3. The system should allow the users to see the menu of the program's sections.
4. The system should provide the users to do search through it.
5. The system should provide the users to have access to the store.
6. The system should allow the users to make the sale through the store by using cash.
7. The system should allow the users to make the sale through the store by using credit card.
8. The system should allow the users to make a purchase through the store by using cash.
9. The system should allow the users to make a purchase through the store by using credit card.
10. The system should allow the users to see the videos through it.
11. The system should allow the users to delete their video in it.
12. The system should allow the users to add any video to it.
13. The system should allow the users to add any written post.
14. The system should allow the users to delete any of their written post.
15. The system should allow the ad users to see some of the other's personal information.
16. The system should allow the users to benefit from the alert system.
17. The system should allow the users to see the information related to the waste problems.
18. The system should allow the users to see the information related to the solutions of waste problems.

19. The system should allow the users to see the information in the system related to how waste is diverted to earn money.
20. The system should allow the users to see the information in the system related to how to benefit from the waste to save money.
21. The system should allow the users to see the average rate for each post.
22. The system should allow the users to add rate to any post.
23. The system should allow the users to create a chat with the other users in general.

The municipalities:

1. The system should allow the municipalities to sign in.
2. The system should allow the municipalities to sign up.
3. The system should allow the municipalities to see the menu of the program's sections.
4. The system should provide the municipalities to do search through it.
5. The system should provide the municipalities to have access to the store.
6. The system should allow the municipalities to make the sale through the store by using cash.
7. The system should allow the municipalities to make the sale through the store by using credit card.
8. The system should allow the municipalities to make a purchase through the store by using cash.
9. The system should allow the municipalities to make a purchase through the store by using credit card.
10. The system should allow the municipalities to see the videos through it.
11. The system should allow the municipalities to delete their video in it.
12. The system should allow the municipalities to add any video to it.
13. The system should allow the municipalities to add any written post.
14. The system should allow the municipalities to delete any of their written post.
15. The system should allow the ad municipalities to see some of the other's personal information.
16. The system should allow the municipalities to benefit from the alert system.
17. The system should allow the municipalities to see the information related to the waste problems.
18. The system should allow the municipalities to see the information related to the solutions of waste problems.
19. The system should allow the municipalities to see the information in the system related to how waste is diverted to earn money.
20. The system should allow the municipalities to see the information in the system related to how to benefit from the waste to save money.

21. The system should allow the municipalities to see the average rate for each post.
22. The system should allow the municipalities to add rate to any post.
23. The system should allow the municipalities to create a chat with the other users in general.
24. The system should allow the municipalities to add any waste dumping sites.
25. The system should allow the municipalities to modify any waste dumping sites.
26. The system should allow the municipalities to remove any waste dumping sites.

Non-Functional Requirements:

The system:

1. The system should operate with internet access.
2. The system should operate without internet access.
3. The system should have the ability to send verification message to the user when he edits his personal information.
4. The system should have the ability to send verification message to the admin when he edits his personal information.
5. The system should have the ability to send verification message to the municipality when it edits its information.
6. The system should have the ability to send notification message to the user every time he signs in.
7. The system should have the ability to send notification message to the admin every time he signs in.
8. The system should have the ability to send notification message to the municipality every time it signs in.
9. The system should ask the user to write his password every time he wants to edit any personal information.
10. The system should ask the admin to write his password every time he wants to edit any personal information.
11. The system should ask the municipality to write its password every time it wants to edit any information related to it.
12. The system should have the ability to display its content in several languages.
13. The system should provide the optimal answer for the questions.
14. Advertisements should be unintrusive for the user.

15. The system should allow it users to delete conversations within no more than two minutes.
16. The system should update the store every day.
17. The system should be updated every three months.
18. The system should provide a simple graphical user interface so that the user can easily deal with it.
19. The system should make sure that the sections follow each other in a logical order.
20. The system should be able to send notifications to the user for any news.
21. The system should be able to send notifications to the municipality for any news.
22. The system should have the ability to distinguish any defect made by the user against these laws.
23. The system should follow the steps related to violating laws in a systematic manner.

Gantt chart:

What is Gantt chart:

A Gantt chart is a type of bar chart that illustrates a project schedule, named after its popularizer, Henry Gantt, who designed such a chart around the years 1910–1915. Modern Gantt charts also show the dependency relationships between activities and the current schedule status. (Wikipedia, Wikipedia, n.d.)

The tasks:

- (A) General analysis and requirements gathering.
- (B) Writing information that aims to increase people's awareness and scientific sources for this information and adding other scientific sources.
- (C) Creating the Product Design.
- (D) Creating the database system.
- (E) Generating and connect the alarm system with database.
- (F) Establishment of the store and the mechanism of communication.
- (G) Create a space for people to communicate with each other and to present what they do and find useful.
- (H) link the program with database.
- (I) Testing and solving the problems.
- (J) Deployment of the Product and Maintenance and Operations.

The tasks will be displayed in the table based on the letters present before each of the tasks presented above.

[illegible]

Conclusion:

This project is based on a set of basic points that must be followed to ensure the creation of a program that achieves the desired goal and the needs of users in general.

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