# Implementation

For the implementation of Data4Help and AutomatedSOS as we mentioned before we will use agile methodology, we took in consideration that AutomatedSOS work on top of Data4Help , so we have first to implement and finish Data4Help completely and test all its functionalities then start implementing AutomatedSOS .

1. Data4Help
   1. Mobile application with all its functionalities.
   2. TrackMe interface with all its functionalities.
   3. Third party interface with all its functionalities.

We planned that a , b and c can be implemented simultaneously then each part tested alone as we will specify later in the testing section then test all together to make sure that Data4Help work correctly and start building AutomatedSOS on top of it so we can minimize the number of errors also we will be able to track any error in AutomatedSOS easily if we finished Data4Help completely well .

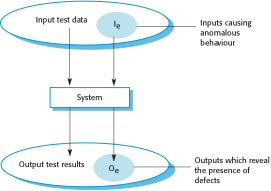
Also we are taking in consideration that implementation is not only programming , we will try to avoid some problems and issues like :-

* **Reuse**:- We believe that modern software is constructed by reusing existing components or systems. Implementing the software we will try to make as much use as possible of existing code.
* **Configuration management :-** During the implementation we intend to release more than a version each one with modified characteristics and improvements , we will save all the previous versions in case of need we can find what we want.
* **Host-target development** :- We plan to develop the software on a specific computer then we will test it on different computers to make sure that it will not make any problems.

# Testing

**-Test Methodology**

Several aspects must be tested in order to conduct the progress of the system. The main target of testing the system is to make sure that all the functions works correctly, and the response time is accurate. In this section we will discuss the software and user test.



**-Stages of testing**

We intend to follow the three stages of testing to make sure that every part in the software works correctly, we will explain in this section the three stages that we are planning to do :-

* Development testing, where the system is tested during development to discover bugs and defects.
* Release testing, where a separate testing team test a complete version of the system before it is released to users.
* User testing, where users or potential users of a system test the system in their own environment.

Every stage of this stages will be explained now.

**-Development testing**

Development testing includes all testing activities that are carried out by the team developing the system.

* Unit testing, where individual program units or object classes are tested. Unit testing should focus on testing the functionality of objects or methods.

Units may be:

* + Individual functions or methods within an object
  + Object classes with several attributes and methods
* Component testing, where several individual units are integrated to create composite components. Component testing should focus on testing component interfaces.
* System testing, where some or all of the components in a system are integrated and the system is tested as a whole. System testing should focus on testing component interactions, in our case tasting if AutomatedSOS works correctly with Data4Help.

**-User Test**

Another aspect that we have aimed for is to provide the end-user a simple user interface with usability in mind. When designing the user interface, we have tried to make the components of the GUI self explanatorily and resemble common icons that users are familiar with. To test the usability of the system, several users will have to test the software. The computer experience of these testers is inexperienced in using computer. Prior the testing the goal and basic functionality of the system are told to the user. During the test we will ask the user about events that may have occurred during the testing of the system such as graphical warnings and sound events. Finally, at the end of each test we will ask the user if there is any ambiguity while testing the system and what recommendation they have.

Also we intend to follow the three user test phases that are :-

* Alpha testing

Users of the software work with the development team to test the software at the developer’s site.

* Beta testing

A release of the software is made available to users to allow them to experiment and to raise problems that they discover with the system developers.

* Acceptance testing

Customers test a system to decide whether or not it is ready to be accepted from the system developers and deployed in the customer environment. Primarily for custom systems.

**-Dataset for testing**

As we mentioned before Data4Help and AutomatedSOS will contain a lot of information about registered people and testing this before launching the software will be a big challenge so we intend to use a ready dataset with big number of data about people ,normal people and people with special health conditions , using a dataset will facilitate the process of testing also we will be able to check if our results are completely correct or not because we will have all the references that we need from this dataset , we didn’t decided yet what database we will use , but we are sure that datasets for this specific kind of software are available on the web.

**-Automated testing**

As we mentioned before that our software will need to manage a big amount of data that’s make testing all the components in the software very complicated , in this case we intend to use an automated testing tool that is (JUnit).