**3.4 TEST METHODOLOGY/PROCEDURES**

The developers has four level of testing, these are Unit testing, Integration testing, System testing, and Acceptance testing. In Unit testing white-box testing is done, on this part the developers try to run the completed subsystem, it is done to identify/check bugs in the code or free of errors. After they examined if there were no more errors left, the researchers would be able to proceed to the next subsystem. It is done to ensure that the code is working as intended before any integration happens with previously tested code. White box testing during unit testing catches any defects in the system and prevents any types of errors.

For Integration testing, the developers combined all the subsystem into one system and tested as a group. This is where the black-box testing is done, black-box testing is a method of software testing that examines the functionality of an application without peering into its external structures or workings. Black-box testing is also applied in System testing. System testing is performed on the entire system in the context of a functional requirements and System requirement specification. System testing tests not only the design of the system, but also the behavior and even the expectations of the user. It is also intended to test up to the bounds defined in the software and hardware requirements specification.

And for acceptance testing, it is a test conducted to determine if the requirements of a specifications are met. The researchers used the Ad hoc testing wherein the user will test the system without planning. The test is conducted randomly without proper expected result. The user improvises the steps and arbitrarily executes them. The researchers used the Ad hoc testing in the acceptance testing in order to discover the issues or defects which cannot be found by following the formal process.

**3.5 SYSTEM REQUIREMENTS**

Orphanage Management Information System can run on different hardware interfaces and software interfaces. For hardware interfaces like computers and laptops, the device must have at least 100 megabytes of free disk space to install the program. For computers with windows operating system, the device must have windows 7, windows 8, windows 10 or any latest windows OS. For computers with Mac OS, the device must have a version of OS X Yosemite 10.10 up to latest version of Mac OS. And for mobile devices with android OS, the system will be available on phones and tablets with android 4.1 up to latest version of android. For iOS, the device must have a version of iOS 10 up to latest version of iOS.

Since the system is web-based, the software interfaces that the user can use are Google chrome, Mozilla Firefox, and Internet Explorer. Google Chrome is the main component of Chrome OS, where it serves as a platform for running web apps. Mozilla Firefox is an open-source web browser available for Windows, MacOS, Linux, and BSD operating system. Internet Explorer can also be used by the user although the first two interfaces are more preferable when it comes to performance speed.

**3.6 QUALITY PLAN**

Our quality model for test specification is an adaptation of ISO 9126. The ISO 9126 model is an international standard for the evaluation of software. ISO 9126 is divided into four parts these are Quality Model, External Matrix, Internal Matrix, and Quality in use matrix. The figure below illustrates our test specification quality model. It is divided into six main Characteristics, each characteristics has sub characteristics. Most of the characteristics defined in ISO 9126 can be re-interpreted for test specification as well.

**Test Specification Quality**

**Portability**

**Maintainability**

**Efficiency**

**Reliability**

**Usability**

**Functionality**

* Suitability
* Accuracy
* Functionality Compliance
* Adaptability
* Portable Compliance
* Analyzability
* Changeability
* Stability
* Test Repeatability
* Security
* Fault tolerance
* Recoverability
* Understand-ability
* Learnability
* Operability
* Time Behavior
* Resource utilization
* Efficiency Compliance

There are different functionalities in the system, one of the functionality is the system could manage the records of children. The output for managing the records of children is that the user can view the list of children, the user can add children, delete the record of the selected child, and edit the information of the selected child. In terms of reliability, the system is capable to maintain its service under defined periods of time. One aspect of this characteristic is fault tolerance that is the ability of the system to withstand failure, if the network goes down for like 1 minute then comes back, the system is able to recover and continue functioning. For the usability, the interface of the system is user-friendly, the user can easily understand the flow the system based on the interface. The buttons are easy to locate and the system is easy to navigate. With regard to efficiency, the response time of the system functions is smooth. For maintainability, the system is easy to maintain because it is applicable to any version of operating system of the computer, if the client wants some improvements for the system, it will be easy for the developer to give what the clients want. And for the portability of the system, it is generic so the system can be used in other orphanages.

**3.7 EVALUATION PLAN**