**2. METHODOLOGY**

**2.1 Research Design**

This study used descriptive method of research since the existing processes of the Recoletos Community Outreach Program (ReCOP) Office must be defined first in order to design and create a mobile – responsive web application that will centralized the transactions regarding outreach activities.

According to Ritchiet. al. (2013), descriptive research is a method where the researchers will be able to observe a large mass of target population and will make required conclusions about the variables.

In its essence, descriptive studies are used to describe various aspects of the phenomenon. In its popular format, descriptive research is used to describe characteristics and behavior of the subject. Three main purposes of descriptive studies can be explained as describing, explaining and validating research findings.

The goal of descriptive research is to describe a phenomenon and its characteristics. This research is more concerned with what rather than how or why something has happened. (Gall, Gall, & Borg, 2007).

The most common descriptive research method is the survey sampling which includes questionnaire, personal interviews, phone surveys and normative surveys (Koh & Owen. 2011).

**2.2 Data Gathering Tools**

The researchers designed an interview questionnaire for the data gathering process to get both qualitative and quantitative data.

The primary aim of the interview questionnaire is to identify the processes regarding the outreach activities and to further characterize each procedures if it is vitally important or not.

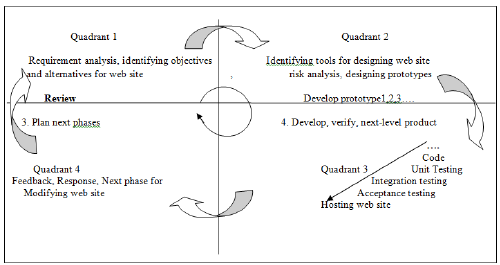
The questionnaire was structured in such a way that respondents will be able to answer it easily.

**2.3 Data Gathering Procedures**

**Web Development Life Cycle**

Since the output of the project was a mobile-responsive web application, the treatment for data gathered as well as constructing the data-access layer, business logic layer and presentation layer of the entire website much differs with what is done in a typical software. In this case, the researchers used the spiral model under the Web Development Life Cycle.

As the name of the model suggests, the activities done can be organized like a spiral. The spiral has many cycles. The radial dimension represents the cumulative cost incurred in accomplishing the steps come so far and the angular dimension represents the progress made in completing each cycle of the spiral. Each cycle in the spiral begins with the identification of objectives for that cycle and the different alternatives are possible for achieving the objectives and the imposed constraints. (Bhosale, 2014)



**Figure 1. Spiral Model for Website Designing**

**Requirement analysis, identifying objectives and alternatives.** The researchers performed an initial meeting in which they were able to identify the scope, objectives and approaches that will be vital for the completion of the project. In addition the project leader and the team members’ individual tasks were assigned. A Gantt chart was constructed to detail the activities.

Afterwards, transaction forms and letters were collected for analysis. The researchers also conducted interviews using their devised questionaires in order for the scope, objectives and approaches to be validated.

**Identifying tools for designing website, risk analysis and designing prototypes*.***After the researchers validated all the requirements, they chose the appropriate web development life cycle model for the project.

The spiral model was chosen for the project because of the constant change in requirements. In addition, the client has different approaches when it comes to their processes and are continually changing their standards in adherence to the current school administration’s rules and by-laws. In this case, it is inferable that cycles of continuous planning, analysis, designing and testing must be done to satisfy the client’s feedbacks and needs.

Furthermore, the team had constructed a database structure which will serve as the backbone of the system. The structure, together with other diagrams like use-case, class and activity diagram, was documented and compiled to form the software documentation.

Flask and Bulma were the development tools used in the completion of the actual web application. Flask is a micro framework from Python which provides simplicity, flexibility and fine-grained control. It also using several plugins which allows developer to freely choose how to implement security, database and design for the project. Bulma is a CSS framework which allows responsive mobile designs which is required for the project.

**Coding, testing-unit, integration, acceptance and hosting website*.***The researchers began developing the web application using the tools stated above.

Each modules were tested in order to assure that the features and requirements stated in the diagram were satisfied. After all the modules were finished, it is then presented as an initial prototype to client for acceptance.

User Acceptance Test (UAT) Questionnaire was prepared in order to test the initial prototype. Once the initial prototype passed the test, it is then deployed online.

**Feedback, response and next phase for modifying website.** The researchers will also get the feedback and issues encountered from the client once the web application was implemented. From these, they will go back to the analysis phase, designing and development of the new prototype.

Additionally, the team will conduct a weekly back-up for the system and quarterly maintenance to ensure that updates and changes in the transaction is implemented.