**CHAPTER 1**

**Overview of the Current State of Technology**

Students nowadays are having difficulties in trying to improve their skills in programming specially in coding. While there are a lot of techniques for them to test their knowledge and skills in coding, it is essential for them to find new and enjoyable ways of testing their knowledge.

Programming is commonly used by those who are engaged with technology and innovation. It is also one of the main topic in the field of information technology and other courses which involves programming in their academic study. Students who are not familiar with programming can barely understand its function and purpose, because programming is a broad topic that evolves as our technology rises to a new level of innovation. Some find it confusing and too complicated to understand especially to those who are not familiar with it. The project, Code Testing RPG (Role Playing Game) is a web based game that can help those who find programming as a difficult topic to their studies and also to those who want to widen their abilities in programming. By just playing they can develop their learning in a fun way and the ability to react to any problem. Learning programming is possible with the help of Code Testing RPG (Role Playing Game).

One of the solutions that can help in testing the knowledge of a student when it comes to coding is by letting them take part of a game that will use coding as the way of interacting with the characters of a role playing game as this allows them to be challenged and to enjoy at the same time when testing their own skills in coding.

The proponents came up with the “Code Test RPG” as a study that will aim to help the students in testing and improving their knowledge towards coding as a solution to the need of having a good way of teaching students and testing their coding skills.

**Research Objectives**

The study aims to improve the skills in programming of the College of Computer Studies Engineering and Architecture students of La Salle University, Ozamiz City.

**Specific Objectives**

1. Develop a role playing game that will test a student’s knowledge in coding.
2. Introduce coding challenges to students in an interesting approach.
3. Allow students to apply their knowledge in coding and gain more from the game.
4. Design a user-friendly and interesting interface for the students.
5. Develop a role playing game that will show students their game records, errors made in coding and how they can improve it.

**Scope and Delimitations/Limitations**

The research will be conducted in the La Salle University Students and will choosing students from the College of Computer Studies as the respondents. The research will be aimed towards students who are studying coding with the programming language which is C++ for now.

**Significance of the Research**

**Sudents**

The students will benefit from the study as this study is meant to provide them a way of testing and improving their skills through a role playing game which is currently popular among most of the students nowadays.

**Teachers**

The teachers will also benefit from the study as this will allow students to understand the topics easier and that through a role playing game, it will also be a new way of teaching students about programming.

**Netizens**

The users of the World Wide Web will also benefit from the study as such some of them find tutorials bore them to death. We also figured out that there are popular games in which it has programming in it so it will also help the users.

**Operational Definition of Terms**

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| **Term** | **Description** |
| **Administrator** | The one who manages the software |
| **Architectural Design** | Architectural design defines the relationship between major structural elements of the software, the architectural styles and design patterns that can be used to achieve the requirements defined for the system, and the constraints that affect the way in which architecture can be implemented [Sha96]. |
| **Component Level Design** | Component-level design transforms structural elements of the software architecture into a procedural description of software components. Information obtained from the class-based models, flow models, and behavioral models serve as the basis for component design. |
| **Database** | Virtual storage where user’s accounts with the specific saved file are stored |
| **Deployment Diagram** | Deployment diagram focuses on the structure of a software system and is useful for showing the physical distribution of a software system among hardware platforms and execution environments. |
| **DFD** | Data Flow Diagram. A graphical depiction of data processes, data flows, and data stores in a business system. |
| **NPC** | Non-Playable Character |
| **Programming** | The action or process of writing computer programs. |
| **Programming Language** | is a formal language that specifies a set of instructions that can be used to produce various kinds of output |
| **Sequence Diagram** | In UML, a diagram that illustrates a succession of interactions between object instances over time. Often used to illustrate the processing described in use case scenarios. |
| **Software Quality Assurance** | a process that ensures that developed software meets and complies with defined or standardized quality specifications. |
| **Use Case Diagram** | a **use case** is a list of actions or event steps, typically defining the interactions between a role (known in the [Unified Modeling Language](https://en.wikipedia.org/wiki/Unified_Modeling_Language" \o "Unified Modeling Language) as an *[actor](https://en.wikipedia.org/wiki/Actor_(UML)" \o "Actor (UML))*) and a system, to achieve a goal. |
| **User** | a person who uses or operates something, especially a computer or other machine. |
| **World Wide Web** | is an information space where documents and other web resources are identified by Uniform Resource Locators (URLs), interlinked by hypertext links, and can be accessed via the Internet. |