1. **Theoretical Framework**
   1. **Introduction**

Geeks vs. Bugs is an android video logical video game that aims to aid learners of basic computer programming to grasp its fundamental concepts. The proponents’ aim is to develop an environment that would use entertainment as a major tool for learning.

This chapter includes theories that used as the reference of the study. Tools such as database management, game engines and etc. that were used to develop the game will also be enumerated and explained in the latter part of the chapter.

* 1. **Psychology of education**
     1. **Problem-based learning**

Problem-based learning (PBL) is a method of learning and teaching, which allows students to focus on how and what they will learn. An unfamiliar problem, situation or task is presented to the students (by the lecturer or tutor) and students are required to determine for themselves how they will go about solving the problem.

PBL is a student-centered approach to learning that encourages students to be self-directed, interdependent and independent as they attempt to solve the set problem.

* + 1. **Interest and Effort in Education**

Interest and effort in education is a study conducted by an American philosopher and psychologist who became responsible of most of our educational advancement. This study was conducted to prove that improved learning experience could be acquired when the interest of learners are being considered. At the same time, learners should also be given an opportunity to exert their effort through problem-based learning. Many universities, teachers and professors later inherited this educational philosophy.

* 1. **Database**

A database is a collection of information that is organized so that it can easily be accessed, managed, and updated. In one view, databases can be classified according to types of content: bibliographic, full-text, numeric, images and etc.

* + 1. **Database Normalization**

Data normalization is a process in which data attributes within a data model are organized to increase the cohesion of entity types. In other words, the goal of data normalization is to reduce and even eliminate data redundancy, an important consideration for application developers because it is incredibly difficult to stores objects in a relational database that maintains the same information in several places.

* 1. **Summary**