

KING MIDAS GAME

GEROME D. SORIANO

ROMEL B. JOVE JR.

ALLEN C. ARREOLA

**A CAPSTONE PROJECT PRESENTED TO THE FACULTY OF THE
ILOCOS SUR POLYTECHNIC STATE COLLEGE
INSTITUTE OF COMPUTING STUDIES
STA. MARIA, ILOCOS SUR**

**IN PARTIAL FULLFILMENT OF THE REQUIREMENTS
FOR THE DEGREE**

**BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(Web Graphics Design and Animation)**

MARCH, 2016

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Chapter I

INTRODUCTION

Project Context

Nowadays, Games and games-based learning have been a part of education for decades. However, with new technological advances, digital games have recently emerged as a new teaching tool. (Keesee, 2011). An educational game is a game designed to teach humans about a specific subject and to teach them a skill. As educators, governments, and parents realize the psychological need and benefits of gaming have on learning, this educational tool has become mainstream. Games are interactive play that teaches us goals, rules, adaptation, problem solving, interaction, all represented as a story. They give us the fundamental needs of learning by providing - enjoyment, passionate involvement, structure, motivation, ego gratification, adrenaline, creativity, social interaction and emotion. "Play has a deep biological, evolutionarily important, function, which has to do specifically with learning."

The MDAS stands for multiplication, division, addition and subtraction. Always do multiplication and division first before addition and subtraction. (<http://www.coolmath.com/prealgebra/05-order-of-operations/02-order-of-operations-part1-MDAS-01>)

In mathematics, the order of operations, believed to have been in its formative stages in the 16th century, is not credited to a single



inventor. This mathematical convention developed as a conceptual process in solving mathematical equations involving multiple operators. Some of the earlier works that contributed to the modern rules of the order of operations included "Mental Arithmetic" by M.A. Bailey, "Text-Book of Algebra" by G.E. Fisher, "High School Algebra, and Elementary Course" by Slaught and Lennes, and "First Course of Algebra" by Hawkes, Luby and Touton. One common memory device for remembering the order of operations is "PEMDAS," which is an acronym for Parenthesis, Exponents, Multiplication and Division, and Addition and Subtraction. Solving a mathematical equation is done from left to right. Multiplication and division are equal in rank, as well as addition and subtraction.

MDAS Rule is actually a rule to follow when we are going to solve a series of operations that is the four fundamental operations of real numbers. MDAS rule stands for MULTIPLICATION, DIVISION, ADDITION and SUBTRACTION. First we have to perform all multiplications and divisions before performing the additions and subtraction. In performing all multiplications and divisions, we should solve or read it from left to right. Do not try to solve any multiplication or division since it is easier or convenient to you to solve.

Always solve from left to right whatever that comes first. Follow the same process for additions and subtraction though we can apply the rule of signed numbers or we can also use the commutative



law of addition.

With an emphasis on images and interactive, our math tutorials make learning math easier. The tutorials are designed to be like a math workbook, so you can practice what you learn directly within the lessons and learn at your own pace.

Mathematics as a formal area of teaching and learning was developed about 5,000 years ago by the Sumerians. They did this at the same time as they developed reading and writing. However, the roots of mathematics go back much more than 5,000 years.

The history of mathematics can be seen as an ever-increasing series of abstractions. The first abstraction, which is shared by many animals, was probably that of numbers: the realization that a collection of two apples and a collection of two oranges (for example) have something in common, namely quantity of their members. As evidenced by tallies found on bone, in addition to recognizing how to count physical objects, prehistoric peoples may have also recognized how to count abstract quantities, like time – days, seasons, years. Evidence for more complex mathematics does not appear until around 3000 BC, when the Babylonians and Egyptians began using arithmetic, algebra and geometry for taxation and other financial calculations, for building and construction, and for astronomy. The earliest uses of mathematics were in trading, land measurement, painting and weaving patterns and the



recording of time. In Babylonian mathematics elementary arithmetic (addition, subtraction, multiplication and division) first appears in the archaeological record. Numeracy pre-dated writing and numeral systems have been many and diverse, with the first known written numerals created by Egyptians in Middle Kingdom texts such as the Rhind Mathematical Papyrus. Between 600 and 300 BC the Ancient Greeks began a systematic study of mathematics in its own right with Greek mathematics.

Mathematics has since been greatly extended, and there has been a fruitful interaction between mathematics and science, to the benefit of both. Mathematical discoveries continue to be made today. According to Mikhail B. Sevryuk, in the January 2006 issue of the Bulletin of the American Mathematical Society, "The number of papers and books included in the Mathematical Reviews database since 1940 (the first year of operation of MR) is now more than 1.9 million, and more than 75 thousand items are added to the database each year. The overwhelming majority of works in this ocean contain new mathematical theorems and their proofs. Throughout their history, humans have faced the need to measure and communicate about time, quantity, and distance.

KING MIDAS GAME is a type of game. In every case, the children's goal is to solve the problem or accomplish a particular challenging task.



Through playing this game a child learns some useful strategies and can make considerable gains in knowledge when he/she finished in solving the problem. Playing educational games also help us and children with focus, self-esteem, and memory. Educational games can help a child focus because they are being patient while waiting to achieve getting to the next level. Playing these games help their self-esteem because sometimes they get a quicker reaction from the game system and they can really see how they have accomplished something. In the games there are milestones that the children will have to reach and at the end of each stage they receive something that they will have to have in the next stage. This is also where their focus comes into play because they will take their time to make sure they do things correctly so that they may go on longer in the game (Schuna, 2011).

Purpose and Description

The purposes of this research is to develop a KING MIDAS GAME to present many challenges to a person's ability to concentrate and process information and to gain knowledge in which knowing its usefulness in every user.

Pupils. The King MiDAS Game can help the learners to have an automatic response and to enhance more their ability in playing educational game.



Teachers. This KING MIDAS GAME is form of educational innovation that will make teaching-learning process enjoyable and meaningful. This will aid the students and even the teachers to explore and experience visual transforming.

Parents. This form of activity motivates their children to widen the mathematical skills in forming solving numbers. It is also a form of mentality activity of the student.

Future Researcher. To inspire them to conduct similar research like this to come up with other or different educational games that will help the learners to equip the necessary skills.

Statement of Objectives

This study is aimed to develop a Math Tutorial game entitled “KING MIDAS GAME” for Grade 2 pupils at Sta. Maria East Central Elementary School.

Specifically, it seeks to achieve the following:

1. To determine the functional and non-functional requirements of the system.
2. To design and develop a Math Tutorial Application called “KING MIDAS GAME” for Grade II students of Santa Maria East Central School.
3. To test the usability of the KING MIDAS GAME using Software Usability Measurement Instrument along:

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- Efficiency
- Attractability
- Helpfulness
- Controllability
- Learnability

Scope and Limitation

The study focused on the developed KING MIDAS GAME intended for Grade 2 pupils. It contains tutorial videos, photos, stories and quizzes about math. It will run the said application using Android phones like smart phones, tablets and even laptop using bluestack application, the bluestack application is an android emulator. The other devices that are not included to run the said application are IOS, windows phone.

The limitation of the developed application is that they cannot use the said application without using an internet or data connection. We conducted the survey at Sta. Maria East Central School. We selected 10 Grade 2 pupils. Using the internet connection we run the system to be tested by the selected pupils.



CHAPTER II

REVIEW OF LITERATURE

Online Games. A video game that is either partially or primarily played through the Internet or another computer network. Online games are ubiquitous on modern gaming platforms, including PCs, consoles and mobile devices, and span many genres.

Mobile Devices. A small computing device, typically small enough to be handheld (and hence also commonly known as a handheld computer or simply handheld) having a display screen with touch input and/or a miniature keyboard and weighing less than 2 pounds (0.91 kg). Samsung, Sony, HTC, LG, Motorola Mobility and Apple are just a few examples of the many manufacturers that produce these types of devices.

Technology. The collection of techniques, skills, methods and processes used in the production of goods or services or in the accomplishment of objectives, such as scientific investigation. Technology can be the knowledge of techniques, processes, etc. or it can be embedded in machines, computers, devices and factories, which can be operated by individuals without detailed knowledge of the workings of such things.



Use of Technology. The human species' use of technology began with the conversion of natural resources into simple tools. The prehistoric discovery of how to control fire and the later Neolithic Revolution increased the available sources of food and the invention of the wheel helped humans to travel in and control their environment. Developments in historic times, including the printing press, the telephone, and the Internet, have lessened physical barriers to communication and allowed humans to interact freely on a global scale.

Game. Is structured form of play, usually undertaken for enjoyment and sometimes used as an educational tool. Games are distinct from work, which is usually carried out for remuneration, and from art, which is more often an expression of aesthetic or ideological elements. However, the distinction is not clear-cut, and many games are also considered to be work (such as professional players of spectator sports or games) or art (such as jigsaw puzzles or games involving an artistic layout such as Mahjong, solitaire, or some video games).

Key Components of Games. Are goals, rules, challenge, and interaction. Games generally involve mental or physical stimulation, and often both. Many games help develop practical skills, serve as a form of exercise, or otherwise perform an educational, simulation, or psychological role.



Ludwig Wittgenstein was probably the first academic philosopher to address the definition of the word game. In his *Philosophical Investigations*, Wittgenstein argued that the elements of games, such as play, rules, and competition, all fail to adequately define what games are. From this, Wittgenstein concluded that people apply the term game to a range of disparate human activities that bear to one another only what one might call family resemblances. As the following game definitions show, this conclusion was not a final one and today many philosophers, like Thomas Hurka, think that Wittgenstein was wrong and that Bernard Suits' definition is a good answer to the problem. (<https://en.wikipedia.org/wiki/Game>)

According to Prensky (2011) Games are form of fun that gives us enjoyment and pleasure. Games are form of play that gives us intense and passionate involvement. Games have rules. That gives us structure. Games have goals. That gives us motivation. Games are interactive. That gives us doing. Games are adaptive. That gives us flow. Games have outcomes and feedback. That gives us learning. Games have win states. That gives us ego gratification. Games have conflict/competition/challenge/opposition. That gives us adrenaline. Games have problem solving. That sparks our creativity. Games have interaction. That gives us social groups. Games have representation and story. That gives us emotion.



Arithmetic or arithmetic's is the oldest and most elementary branch of mathematics. It consists of the study of numbers, especially the properties of the traditional operations between them addition, subtraction, multiplication and division. Arithmetic is an elementary part of number theory, and number theory is considered to be one of the top-level divisions of modern mathematics, along with algebra, geometry, and analysis. The terms arithmetic and higher arithmetic were used until the beginning of the 20th century as synonyms for number theory and are sometimes still used to refer to a wider part of number theory.

Addition is the basic operation of arithmetic. In its simplest form, addition combines two numbers, the addends or terms, into a single number, the sum of the numbers. Addition is commutative and associative so the order the terms are added in does not matter. The identity element of addition (the additive identity) is 0 that is, adding 0 to any number yields that same number. Also, the inverse element of addition (the additive inverse) is the opposite of any number, that is, adding the opposite of any number to the number itself yields the additive identity, 0. Subtraction is the inverse of addition. Subtraction finds the difference between two numbers, the minuend minus the subtrahend. If the minuend is larger than the subtrahend, the difference is positive; if the minuend is smaller than the subtrahend, the difference is negative; if they are equal, the difference is 0. Multiplication is the second basic operation of arithmetic.



Multiplication also combines two numbers into a single number, the product. The two original numbers are called the multiplier and the multiplicand, sometimes both simply called factors. Multiplication may be viewed as a scaling operation. If the numbers are imagined as lying in a line, multiplication by a number, say x , greater than 1 is the same as stretching everything away from 0 uniformly, in such a way that the number 1 itself is stretched to where x was. Similarly, multiplying by a number less than 1 can be imagined as squeezing towards 0.

Division is essentially the inverse of multiplication. Division finds the quotient of two numbers, the dividend divided by the divisor. Any dividend divided by 0 is undefined. For distinct positive numbers, if the dividend is larger than the divisor, the quotient is greater than 1, otherwise it is less than 1 a similar rule applies for negative numbers. The quotient multiplied by the divisor always yields the dividend.
[\(https://en.wikipedia.org/Aithmetic\)](https://en.wikipedia.org/Aithmetic)

KING MIDAS GAME as a game that a person plays against themselves. Focuses on describing how multiple factors in given situations interact with each other, either socially or competitively.



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