Addition

* Easy, Two Numbers 1 – 100
* Normal, Three Numbers 1 – 10,000
* Hard, Four Numbers 1 – 1,000,000

Subtraction

* Easy, Two Numbers 1 – 100, Largest – Smallest
* Normal, Two Numbers 1 – 10,000 (answer can be negative)
* Hard, Two Numbers 1 – 1,000,000

Multiplication

* Easy, Two Numbers 1 – 12
* Normal, 2 Numbers 5 – 99
* Hard, 3 Numbers 5 - 500

Division (Remainders Ignored)

* Easy, Two Numbers 1 -12 (xy / x = y)
* Normal, numbers to 100
* Hard, 1,000 – 1,000,000

Mixed

* Easy, two numbers 1 – 12 random operators excluding division.
* Normal, Three random numbers 1 – 100 random Operators
* Hard, 4 random numbers 1 – 1000 random operators

**Scoring/ Objective**

Each mode and difficulty will store a high score in local file as to not reset it when the program is restarted. The score will go up for every correct question until a question is failed where the score will be checked to see if it is a new high score and the local file will be updated if need be, then the current score will reset back to zero and the user will be given the option to restart, return to menu of quit the application.

**Objectives**  
 What are you aiming to produce?

A maths-based game that aims to improve mental arithmetic skills. This game will cater to a range of skill levels using the four basic mathematical operations; addition, subtraction, multiplication and division. The player will answer one question at a time, of which they choose both operation and difficulty. The program will also provide the user with feedback, e.g. “Correct!’ when correct or “The correct answer was [answer].” when incorrect.  
**Requirements**  
What does the user need the software to do?

The user needs the software to take their answer and validate whether it is correct or incorrect  
What does the software allow the user to do?

The software allows the user to input an answer and select operation and difficulty to assist in honing mental arithmetic skills

**What will the program need to do?**

* The program will have a main menu where you can select a game mode, followed by a sub menu which allows the user to select a difficulty.
* After a difficulty is selected the game will start a timer based to the difficulty easy: 9 min; Normal: 6 min; Hard: 3 Min
* All menus will have a way to exit to the previous menu.
* The game scene will have one simple input with a submit button, or alternatively the enter key will also submit an answer.
* The input will only allow for integers to be submitted.
* Questions will be randomly generated and their answer calculated to be checked against.