

# **MATHSQUIXZ**

**AIM:** To create a simple Mathematical game with C programming language. In these code we create a simple game of mathematics . We take limit of number and operator they wish to solve from user and number of question they want attempt .If the user feels like to change the operator or end the game he can by entering 'c' or 'q'. At the end of the game no of attempt ,score of game and comment based on score.

**TOOLS:** CODEBLOCKS

**LIBRARY:**

*Stdio.h*

*Stdlib.h*

*Time.h*

**ALGORITHM:**

Start:

"Initialize the Game"

"Display Welcome Message"

"Initialize Variables"

"Seed Random Number Generator"

"Ask User to Choose Difficulty Level"

"Ask user to Choose Operator"

While Loop for Questions:

Inside the loop, for each question:

"Generate Random Numbers"

"Determine the Operator"

"Present the Question"

"Accept and Check Player's Answer"

"If Player Enters 'q', Exit the Game"

"If Player Enters 'c', Change the Operator and Continue"

End of Game:

"Display Final Score"

"Evaluate and Display Result (PERFECT, AMAZING, GOOD, or Try Again) Based on Performance"

End:

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
#include <time.h>
```

```
// Function to allow the player to choose the operator
```

```
int operator_selection() {
```

```
    int newOperator;
```

```
    printf("Operator Selection:\n");
```

```
    printf("1. Addition (+)\n");
```

```
    printf("2. Subtraction (-)\n");
```

```
    printf("3. Multiplication (*)\n");
```

```
    printf("Enter the number for your desired operator: ");
```

```
    scanf("%d", &newOperator);
```

```
    return newOperator;
```

```
}
```

```
int main() {
```

```
    int num1, num2, playerAnswer, correctAnswer;
```

```
    int limit, numQuestions, operatorChoice;
```

```
    int correct = 0, questionsAttempted = 0;
```

```
float c, q;
```

```
srand(time(NULL)); // Seed the random number generator with the current time
```

```
printf("Welcome to the Math Game!\n");
```

```
printf("Gamer, let's start\n");
```

```
printf("Difficulty Levels:\n");
```

```
printf("1. Easy (Numbers between 0-30)\n");
```

```
printf("2. Normal (Numbers between 30-100)\n");
```

```
printf("3. Hard (Numbers 100 and above)\n");
```

```
printf("Enter the number for your desired difficulty level: ");
```

```
int difficultyChoice;
```

```
scanf("%d", &difficultyChoice);
```

```
// Set the difficulty level based on user choice
```

```
switch (difficultyChoice) {
```

```
    case 1:
```

```
        limit = 30;
```

```
        break;
```

```
    case 2:
```

```
        limit = 100;
```

```
        break;
```

case 3:

```
    limit = 1000; // You can adjust the upper limit for the "Hard" level
```

```
    break;
```

default:

```
    printf("Invalid choice. Defaulting to Normal.\n");
```

```
    limit = 100;
```

```
    break;
```

```
}
```

```
printf("You've chosen the ");
```

```
if (limit <= 30) {
```

```
    printf("Easy");
```

```
} else if (limit <= 100) {
```

```
    printf("Normal");
```

```
} else {
```

```
    printf("Hard");
```

```
}
```

```
printf(" difficulty level.\n");
```

```
while (1) {
```

```
    // Allow the player to select the operator and validate the choice
```

```
    printf("Operator Selection:\n");
```

```
printf("1. Addition (+)\n");
```

```
printf("2. Subtraction (-)\n");
```

```
printf("3. Multiplication (*)\n");
```

```
printf("Enter the number for your desired operator: ");
```

```
scanf("%d", &operatorChoice);
```

```
if (operatorChoice >= 1 && operatorChoice <= 4) {
```

```
    break;
```

```
} else {
```

```
    printf("Invalid operator choice. Please choose 1, 2, 3, or 4.\n");
```

```
}
```

```
}
```

```
printf("Enter the number of questions you want to attempt: ");
```

```
scanf("%d", &numQuestions);
```

```
while (questionsAttempted < numQuestions) {
```

```
    if (operatorChoice == 4) {
```

```
        operatorChoice = operator_selection();
```

```
    }
```

```
num1 = rand() % (limit + 1);
```

```
num2 = rand() % (limit + 1);
```

```
// Determine the operator and present the corresponding question
```

```
switch (operatorChoice) {
```

```
    case 1:
```

```
        correctAnswer = num1 + num2;
```

```
        printf("Question %d: What is %d + %d?\n", questionsAttempted + 1, num1, num2);
```

```
        break;
```

```
    case 2:
```

```
        correctAnswer = num1 - num2;
```

```
        printf("Question %d: What is %d - %d?\n", questionsAttempted + 1, num1, num2);
```

```
        break;
```

```
    case 3:
```

```
        correctAnswer = num1 * num2;
```

```
        printf("Question %d: What is %d * %d?\n", questionsAttempted + 1, num1, num2);
```

```
        break;
```

```
    default:
```

```
        printf("Invalid operator choice. Defaulting to addition (+).\n");
```

```
        correctAnswer = num1 + num2;
```

```
        printf("Question %d: What is %d + %d?\n", questionsAttempted + 1, num1, num2);
```

```
        break;
    }

    scanf("%d", &playerAnswer);

    if (playerAnswer == correctAnswer) {
        printf("Correct! %d is indeed %d.\n", correctAnswer, playerAnswer);
        correct++;
    } else {
        printf("Oops, that's not correct. The correct answer is %d.\n", correctAnswer);
    }

    // Visual separator for better readability
    printf("_____\n");

    questionsAttempted++;

    if (questionsAttempted == numQuestions) {
        break;
    }

    printf("Enter 'c' to change the operator, 'q' to quit, or any other key to continue: ");
```

```
char choice;

scanf(" %c", &choice);

if (choice == 'q') {

    break;

} else if (choice == 'c') {

    operatorChoice = operator_selection();

}

}

c = correct;

q = questionsAttempted;

printf("Game over.\n You attempted %d questions.\n", questionsAttempted);

printf("Your score is %d/%d\n", correct, questionsAttempted);

// Provide feedback based on the player's performance

if (c / q == 1) {

    printf("PERFECT");

} else if (c / q >= 0.6) {

    printf("AMAZING !!!");

} else if (0.3 <= c / q && c / q < 0.6) {
```



```
        printf("GOOD");

    } else {

        printf("Don't Give Up! Try Again");

    }


    return 0;

}
```

## **RESULT:**

```
Welcome to the Math Game!

Gamer, let's start

Difficulty Levels:

1. Easy (Numbers between 0-30)

2. Normal (Numbers between 30-100)

3. Hard (Numbers 100 and above)

Enter the number for your desired difficulty level: 1

You've chosen the Easy difficulty level.

Operator Selection:

1. Addition (+)

2. Subtraction (-)
```

### 3. Multiplication (\*)

Enter the number for your desired operator: 2

Enter the number of questions you want to attempt: 5

Question 1: What is 28 - 25?

3

Correct! 3 is indeed 3.

---

Enter 'c' to change the operator, 'q' to quit, or any other key  
to continue: c

Operator Selection:

1. Addition (+)

2. Subtraction (-)

3. Multiplication (\*)

Enter the number for your desired operator: 3

Question 2: What is 9 \* 27?

344

Oops, that's not correct. The correct answer is 243.

---

Enter 'c' to change the operator, 'q' to quit, or any other key  
to continue: f

Question 3: What is  $7 * 5$ ?

35

Correct! 35 is indeed 35.

---

Enter 'c' to change the operator, 'q' to quit, or any other key  
to continue: c // user continue the game but change the  
operation

Operator Selection:

1. Addition (+)

2. Subtraction (-)

3. Multiplication (\*)

Enter the number for your desired operator: 1

Question 4: What is  $4 + 3$ ?

7

Correct! 7 is indeed 7.

---

Enter 'c' to change the operator, 'q' to quit, or any other key  
to continue: q // user quit the game

Game over.

You attempted 4 questions.

Your score is 3/4

AMAZING !!!

Welcome to the Math Game!

Gamer, let's start

Difficulty Levels:

1. Easy (Numbers between 0-30)
2. Normal (Numbers between 30-100)
3. Hard (Numbers 100 and above)

Enter the number for your desired difficulty level: 1

You've chosen the Easy difficulty level.

Operator Selection:

1. Addition (+)
2. Subtraction (-)

### 3. Multiplication (\*)

Enter the number for your desired operator: 2

Enter the number of questions you want to attempt: 5

Question 1: What is 28 - 25?

3

Correct! 3 is indeed 3.

---

Enter 'c' to change the operator, 'q' to quit, or any other key  
to continue: c

Operator Selection:

1. Addition (+)

2. Subtraction (-)

3. Multiplication (\*)

Enter the number for your desired operator: 3

Question 2: What is 9 \* 27?

344

Oops, thats not correct. The correct answer is 243.

---

Enter 'c' to change the operator, 'q' to quit, or any other key  
to continue: f

Question 3: What is  $7 * 5$ ?

35

Correct! 35 is indeed 35.

---

Enter 'c' to change the operator, 'q' to quit, or any other key  
to continue: c // user continue the game but change the  
operation

Operator Selection:

1. Addition (+)

2. Subtraction (-)

3. Multiplication (\*)

Enter the number for your desired operator: 1

Question 4: What is  $4 + 3$ ?

7

Correct! 7 is indeed 7.

---

```
Enter 'c' to change the operator, 'q' to quit, or any other key  
to continue: q // user quit the game
```

Game over.

You attempted 4 questions.

Your score is 3/4

AMAZING !!!

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