Documentation

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# Statement of Intent

Create an educational text program in python designed to improve year 7 and 8 student’s skills in any area.

# Gantt Chart

In a separate file.

# Game Plan/Description of Program

I am going to create an educational game using Python that helps students with their maths skills by giving them multiple difficulties of multiplication.

For the maths game they will be asked how many rounds they want to play and given 3 difficulties: easy, medium and hard. For each difficulty two random numbers will be generated from a predefined list and displayed for the user to multiply together and answer. If they answer correctly, the next question will display, if they answer incorrectly, they will be given the correct answer and the next question will be displayed. After the specified rounds are done, it will print out how many questions the user got correct and incorrect, before asking whether they want to play again or go back to the menu.

# Logical Algorithm

## Arithmetic

Easy table = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
Medium table = [5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15]  
Hard table = [10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20]

Print Introduction Text and game options

Ask user for game choice

If game choice is arithmetic:

Print random beginning message for arithmetic

Else:

Print that the option typed is not an option

Ask user for game choice

While the game chosen is arithmetic:

Correct = 0; Incorrect = 0

Ask user how many rounds they want to play

Ask user what difficulty they want to play on

If selected difficulty is easy:

Print random beginning message for easy

Break out of while loop

If selected difficulty is medium:

Print random beginning message for medium

Break out of while loop

If selected difficulty is hard:

Print random beginning message for hard

Break out of while loop

While the rounds played > 0:

If the difficulty is easy:

Table1 = random number from easy list

Table2 = random number from easy list

If the difficulty is medium:

Table1 = random number from medium list

Table 2 = random number from medium list

If the difficulty is hard:

Table1 = random number from hard list

Table2= random number from hard list

Table answer = Table1 \* Table2

Print Table1 x Table2 =

Ask user for answer

If answer = table answer:

Print that the user got it right

Correct = Correct + 1

If answer != table answer:

Print that the user got it wrong

Print that the correct answer is table answer

Incorrect = Incorrect + 1

Rounds = Rounds – 1

Print to the user that he got correct questions correct and incorrect questions incorrect

Ask user if the user wants to play again

If user plays again:

Game choice = Arithmetic

If user doesn’t play again:

Game choice = “”

# Problems Encountered & Solutions Used

|  |  |
| --- | --- |
| Issues | Solutions |
| Couldn’t get the program display out different messages each time a input is given. | Make a list of strings, with each string containing the message. Then use random.choice to choose a random message from that list. |
| Couldn’t get a line of text print out at a certain speed. | Used a snippet of code from StackOverflow that allows for slow printing, simulating typing: <http://stackoverflow.com/questions/4099422/printing-slowly-simulate-typing> |
| Users tried to skip the initial warning message by spamming enter. | Used a snippet of code from StackOverflow of a loading bar:  <http://stackoverflow.com/questions/3173320/text-progress-bar-in-the-console> |

# Program Testing

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Input | Expected Outputs | Actual Outputs |
| def arithmetic():  ... | arithmetic() | Running the Number Guess python file | TypeError: Object of type 'function' has no len() |
| def numguess():  ... | numguess() | Running the Arithmetic python file | TypeError: 'list' object is not callable |

# Evaluation

I believe that my game meets all the requirements of the assessment task. It will be educational for younger users in terms of maths because it helps the people who play my program to increase their multiplication calculating speed.