

Computer Program Documentation

You MUST provide evidence showing how the program has been debugged, tested, trialled and feedback used to improve a final, working outcome.

Program Outline

Provide an overview of the program purpose, the intended end users, how the program will function, what the end user can expect e.g. messages to help them enter the correct information, any scores or feedback on their progress and how it ends.

The purpose of this program is to run a multiplication quiz aimed at school students ages Yr 8 - 11 looking to test their knowledge of times tables. The game will ask you if you want to read the instructions and how many rounds you would like. These rounds are within a boundary of 5 and 15. Next, the game begins with a series of random multiplication questions. Depending on how you answer, it displays your results. If you got it incorrect, it also displays the correct answer so you can learn what you need to work on. At the end of this quiz, it will display your correct/incorrect statistics, and ask if you want to see your round history – this will display if you say yes. Lastly, it concludes the game.

Debugging

Show evidence (screenshots) of bugs (problems/errors) that prevent the program functioning. Add a brief description of the error and what you did to fix it.

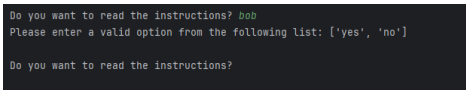
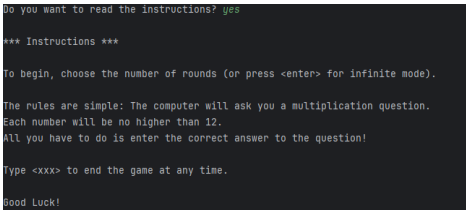
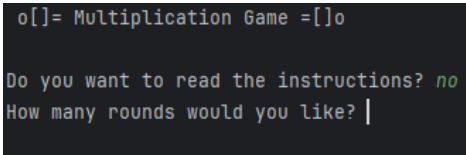
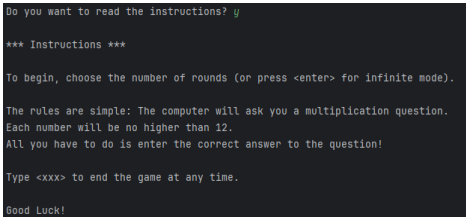
<i>Before</i>	<i>After</i>	<i>Explanation</i>
		<i>My code was only returning the "incorrect" message when answering a question. To fix this, I reworked my integer checking function so every answer was as follows.</i>

	<pre> .+= Round 3 of 5 +=. What is 3 multiplied by 8? bob Please enter an integer that is 1 or more. What is 3 multiplied by 8? 0 Please enter an integer that is 1 or more. What is 3 multiplied by 8? 24 You are correct! .+= Round 4 of 5 +=. What is 6 multiplied by 5? xxx +++ Game Statistics +++ Correct: 66.67 Incorrect: 33.33 Do you want to see your game history? </pre>	
<pre> What is 5 multiplied by 6? 30 Please enter an integer that is between 5 and 15. What is 5 multiplied by 6? 30 Please enter an integer that is between 5 and 15. What is 5 multiplied by 6? 15 You are incorrect. The answer was 30. </pre>	<pre> How many rounds would you like? 6 .+= Round 1 of 6 +=. What is 2 multiplied by 6? 12 You are correct! .+= Round 2 of 6 +=. What is 5 multiplied by 5? 25 You are correct! </pre>	<p>(22/7/25)</p> <p>When trying to make boundaries for my rounds, I discovered that I'd accidentally limited the valid answers in the quiz between 5 and 15. To fix this I made a new function ("round_check") specifically for checking the number of rounds.</p>
<pre> File "W:\11\mirandastuart\Programming\92085 - Assignment 1" elif to_check == "xxx": A SyntaxError: invalid syntax Process finished with exit code 1 </pre> <pre> elif to_check == "xxx": return "xxx" try: response = int(to_check) # check that the number is more than / equal to 1 if response < 1: print() print(error) print() else: return response </pre>	<pre> if to_check == "xxx": return "xxx" try: response = int(to_check) # check that the number is more than / equal to 1 if response < 1: print() print(error) print() else: return response except ValueError: print() print(error) print() </pre> <pre> C:\Python39\python.exe "W:\11\mirandastuart\Programming\92085 - Assignment 1" o[]= Multiplication Game =[]o Do you want to read the instructions? </pre>	<p>(29/7/25)</p> <p>I was deleting my "infinite mode" coding and didn't change the following "elif" to an "if" statement, which made my program self-destruct. I fixed this by changing the "elif" to an "if".</p>
<pre> you want to read the instructions? Yes Instructions *** begin, choose the number of rounds (or press <enter> for infinite mode). rules are simple: The computer will ask you a multiplication question. the number will be no higher than 12. you have to do is enter the correct answer to the question! e <xxx> to end the game at any time. Good Luck! How many rounds would you like? 6 </pre>		<p>(30/7/25)</p> <p>My instructions still said "press enter for infinite mode" despite there no longer being an infinite mode. I deleted this shortly after.</p>

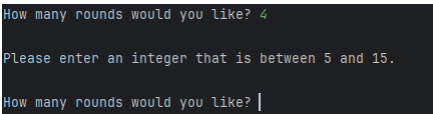
Testing Schedule

Show evidence that you have tested for expected, boundary (e.g. if the boundary is numbers 5 - 10, test for numbers 4, 5, 10 and 11) and invalid input e.g. entering a name, number etc. Add a screenshot of the results .

Test plan for Yes_No function

Data Input	Expected Output (<i>What should happen</i>)	Actual Output (<i>What did happen</i>)
bob	Message should display 'enter a valid option from yes or no'	 <pre>Do you want to read the instructions? bob Please enter a valid option from the following list: ['yes', 'no'] Do you want to read the instructions?</pre>
yes	Message should display instructions	 <pre>Do you want to read the instructions? yes *** Instructions *** To begin, choose the number of rounds (or press <enter> for infinite mode). The rules are simple: The computer will ask you a multiplication question. Each number will be no higher than 12. All you have to do is enter the correct answer to the question! Type <xxx> to end the game at any time. Good Luck!</pre>
no	Code should continue as normal	 <pre>o[]= Multiplication Game =[o Do you want to read the instructions? no How many rounds would you like? </pre>
y	Message should display instructions	 <pre>Do you want to read the instructions? y *** Instructions *** To begin, choose the number of rounds (or press <enter> for infinite mode). The rules are simple: The computer will ask you a multiplication question. Each number will be no higher than 12. All you have to do is enter the correct answer to the question! Type <xxx> to end the game at any time. Good Luck!</pre>

Test plan for boundary testing - tests for input outside the boundary and on the boundary (accepts numbers between 5 - 15)

Data Input	Expected Output(<i>What should happen</i>)	Actual Output (<i>What did happen</i>)
4	"Please enter an integer between 5 and 15." (Ask again)	 <pre>How many rounds would you like? 4 Please enter an integer that is between 5 and 15. How many rounds would you like? </pre>

16	"Please enter an integer between 5 and 15." (Ask again)	How many rounds would you like? 16 Please enter an integer that is between 5 and 15. How many rounds would you like?
xyz	"Please enter an integer between 5 and 15." (Ask again)	How many rounds would you like? xyz Please enter an integer that is between 5 and 15. How many rounds would you like?
5	Code continues	How many rounds would you like? 5 .=+ Round 1 of 5 +=. What is 7 multiplied by 8?
15	Code continues	How many rounds would you like? 15 .=+ Round 1 of 15 +=. What is 5 multiplied by 8?

Test Plan for checking if the number is an integer, an error or the exit code

Input	Expected	Actual
What is the number? xxx	Ends code	What is the number? xxx Process finished with exit code 0
What is the number? 0	Please enter an integer equal to 1 or more.	What is the number? 0 Please enter an integer that is 1 or more. What is the number? bob Please enter an integer that is 1 or more. What is the number? 3 3
What is the number? bob	Please enter an integer equal to 1 or more.	^
What is the number? 3	3	^

Test plan for correct/incorrect/invalid

Data Input	Expected Output (<i>What should happen</i>)	Actual Output (<i>What did happen</i>)
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MIRANDA STUART

Correct answer	Correct!	<pre> What is 5 multiplied by 8? 40 You are correct! </pre>
Incorrect	Incorrect, (states answer)	<pre> What is 11 multiplied by 4? 33 You are incorrect. The answer was 44. </pre>
bob	Please enter an integer.	<pre> What is 6 multiplied by 2? bob Please enter an integer that is 1 or more. </pre>
enter	Incorrect, (states answer)	<pre> What is 6 multiplied by 2? You are incorrect. The answer was 12. </pre>
xxx	Ends the game	<pre> What is 2 multiplied by 9? xxx +++ Game Statistics +++ Correct: 33.33 Incorrect: 66.67 Do you want to see your game history? </pre>

Program Testing

Show evidence your final working program has been fully tested for expected, **boundary** and **invalid** input. This can either be as screenshots or a short Screencastify video

Test plan for completed program

Data Input	Expected Output (<i>What should happen</i>)	Actual Output (<i>What did happen</i>)
<p>Would you like to read the instructions? Hgnjñ; (enter); Yes</p> <p>How many rounds would you like? 4; none; aaaaa; 20; 5</p> <p>What is _ multiplied by _ ? (Correct)</p> <p>What is _ multiplied by _ ?</p>	<p>"Please enter a valid option from the following list: "yes", "no", repeats question, instructions display</p> <p>"Please enter an integer between 5 and 15" x 4; Game starts</p> <p>"You are correct!"</p> <p>"You are correct!"</p>	<p>Photos displayed below.</p>

<p>(Correct) <i>What is _ multiplied by _ ?</i> (Incorrect)</p> <p><i>What is _ multiplied by _ ?</i> bob; nine; 0.5; (Incorrect)</p> <p><i>What is _ multiplied by _ ?</i> (Exit code)</p> <p><i>(Game statistics display 50% and 50%)</i></p> <p><i>Would you like to see your game history? Jkfnknj; Y</i></p>	<p><i>“You are incorrect. The answer is ____.”</i></p> <p><i>“Please enter an integer that is 1 or more.” x 3; “You are incorrect. The answer is ____.”</i></p> <p>Game ends</p> <p>Game history displays</p>	

```
C:\Python39\python.exe "W:\11\mirandastuart\Programming\92005 - Assignment\assessment\01_Multiply\B_01_Multiply_v2.py"

o[]= Multiplication Game =[]o

Do you want to read the instructions? Hgnjn
Please enter a valid option from the following list: ['yes', 'no']

Do you want to read the instructions?
Please enter a valid option from the following list: ['yes', 'no']

Do you want to read the instructions? Yes

*** Instructions ***

To begin, choose the number of rounds (or press <enter> for infinite mode).

The rules are simple: The computer will ask you a multiplication question.
Each number will be no higher than 12.
All you have to do is enter the correct answer to the question!

Type <xxx> to end the game at any time.

Good Luck!
How many rounds would you like? 4

Please enter an integer that is between 5 and 15.

How many rounds would you like? none

Please enter an integer that is between 5 and 15.

How many rounds would you like? aaaaa

Please enter an integer that is between 5 and 15.

How many rounds would you like? 20

Please enter an integer that is between 5 and 15.
```

How many rounds would you like? 5

.+= Round 1 of 5 +=.

What is 6 multiplied by 3? 18

You are correct!

.+= Round 2 of 5 +=.

What is 10 multiplied by 2? 20

You are correct!

.+= Round 3 of 5 +=.

What is 2 multiplied by 2? 6

You are incorrect. The answer was 4.

.+= Round 4 of 5 +=.

What is 1 multiplied by 3? bob

Please enter an integer that is 1 or more.

What is 1 multiplied by 3? nine

Please enter an integer that is 1 or more.

What is 1 multiplied by 3? 0.5

Please enter an integer that is 1 or more.

What is 1 multiplied by 3? 1

You are incorrect. The answer was 3.


```
.+= Round 5 of 5 +=.

What is 2 multiplied by 1? xxx

+++ Game Statistics +++
Correct: 50.00   Incorrect: 50.00

Do you want to see your game history? Jkfnknj
Please enter a valid option from the following list: ['yes', 'no']

Do you want to see your game history? Y

Round: 1 - 6 multiplied by 3, You are correct!
Round: 2 - 10 multiplied by 2, You are correct!
Round: 3 - 2 multiplied by 2, You are incorrect. The answer was 4.
Round: 4 - 1 multiplied by 3, You are incorrect. The answer was 3.

Thanks for playing.

Process finished with exit code 0
```

All inputs had expected results.

Usability/End User Testing

Write a list of improvements which need to be made based on end user feedback. Add information about what you changed to meet the end user feedback. - This is not assessed, but is good practice.

A friend of mine told me that, at times, it's a little uninteresting to look at and was a bit like a wall of text. Having colours or emojis could break up the quiz and make it easier on the eyes, especially for people who may not be able to see well or aren't too savvy with multiplication and need some visual intrigue in order to focus/try. To improve on this I added some emojis to headings and round results that suited their location in the script (emojis for correct and incorrect as ticks and crosses, etc).

Post Usability Testing

Show that your program works correctly after making the improvements. This can be screenshots or a short Screencastify video

```
C:\Python39\python.exe "W:\11\mirandastuart\Programming\92005 - Assignment\assessment\01_Multiply\B_01_Multiply_v2.py"

= 🎲 Multiplication Game 🎲 =

Do you want to read the instructions? Hgnjn
Please enter a valid option from the following list: ['yes', 'no']

Do you want to read the instructions? Yes

* 📖 Instructions 📖 *

To begin, choose the number of rounds (any number between 5 and 15).

The rules are simple: The computer will ask you a multiplication question.
Each number will be no higher than 12.
All you have to do is enter the correct answer to the question!

Type <xxx> to end the game at any time.

Good Luck!
How many rounds would you like? 4

Please enter an integer that is between 5 and 15.

How many rounds would you like? none

Please enter an integer that is between 5 and 15.

How many rounds would you like? aaaaa

Please enter an integer that is between 5 and 15.

How many rounds would you like? 20

Please enter an integer that is between 5 and 15.

How many rounds would you like? 5
```

.=💎 Round 1 of 5 💎=.

What is 3 multiplied by 11? 33

✅ You are correct! ✅

.=💎 Round 2 of 5 💎=.

What is 3 multiplied by 1? 3

✅ You are correct! ✅

.=💎 Round 3 of 5 💎=.

What is 6 multiplied by 5? 25

❌ You are incorrect. The answer was 30. ❌

.=💎 Round 4 of 5 💎=.

What is 10 multiplied by 8? bob

Please enter an integer that is 1 or more.

What is 10 multiplied by 8? nine

Please enter an integer that is 1 or more.

What is 10 multiplied by 8? 0.5

Please enter an integer that is 1 or more.

What is 10 multiplied by 8?

Please enter an integer that is 1 or more.

What is 10 multiplied by 8? 18

❌ You are incorrect. The answer was 80. ❌

```
.=💎 Round 5 of 5 💎=.
```

```
What is 10 multiplied by 7? xxx
```

```
++ 🎮 Game Statistics 🎮 ++
```

```
Correct: 50.00   Incorrect: 50.00
```

```
Do you want to see your game history? Jkfnknj
```

```
Please enter a valid option from the following list: ['yes', 'no']
```

```
Do you want to see your game history? Y
```

```
Round: 1 - 3 multiplied by 11,  ✓ You are correct!  ✓
```

```
Round: 2 - 3 multiplied by 1,  ✓ You are correct!  ✓
```

```
Round: 3 - 6 multiplied by 5,  ✗ You are incorrect. The answer was 30. ✗
```

```
Round: 4 - 10 multiplied by 8, ✗ You are incorrect. The answer was 80. ✗
```

```
Thanks for playing.
```

```
Process finished with exit code 0
```

Everything still worked as intended following an identical test plan as before, and it does look more lively.