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1 """Integration Project: This is a math quiz that tests your knowledge on
2 basic math skills like addition and subtraction. Depending on what's being
3 asked, the answer may be a string, an integer, or a float. """
4
5 __author__ = "Logan Nguyen"
6
7 # This is my integration project, which is a simple math test.
8
9 # When question asks for an integer answer, create a function to check.
10
11 import math
12
13
14 def calculate_area(radius):
15     """
16
17         :param radius:
18         :return:
19         """
20     area = math.pi * radius ** 2
21     return round(area, 2)
22
23
24 def calculate_radius(diameter):
25     """
26
27         :param diameter:
28         :return:
29         """
30     radius = diameter / 2
31     return radius
32
33
34 while True:
35     score = 0
36
37     # When I was creating this question, I wanted to make it so that it
38     # would count "yes" as correct either with or without capital letters.
39     # After doing some research on Google, I discovered the "lower()"
40     # function. https://www.geeksforgeeks.org/python-string-lower/
41     print("Welcome to this short math quiz.")
42     pollQuestion = input("Do you like doing math? ")
43     if pollQuestion.lower() == "yes":
44         print("Let's get started!")
45     else:
46         print("Unfortunately, you can't take this quiz because you hate math!")
47         quit()
48
49     # I also found the quit() function while doing some research and thought
50     # I'd throw it in for fun in the first question.
51     # https://codeberryschool.com/blog/en/how-to-end-a-program-in-python/
52
53     # I also found out that you can implement a scoring system.
54     # https://codereview.stackexchange.com/questions/202532/python-multi-choice
55     -quiz-with-a-score-to-count
56     addition_symbol = input("What does this symbol represent? (+) ")
57     if addition_symbol.lower() == "addition":
58         print("Correct!")
59         score += 1
60     else:
61         print("Incorrect!")

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61     # Addition (+) adds 2 numbers together.
62
63     num1 = 6
64     num2 = 2
65     additionAnswer = num1 + num2
66     print("What is 6 + 2? ")
67     your_addition_answer = int(input())
68     if additionAnswer == your_addition_answer:
69         print("Correct!")
70         score += 1
71     else:
72         print("Incorrect!")
73
74     print("Does 2 + 2 = 5?")
75     joke_question = input()
76     joke_answer = not (2 + 2 == 5)
77     if joke_question.lower() == "no" and joke_answer:
78         print("Correct!")
79         score += 1
80     else:
81         print("Incorrect!")
82
83     subtraction_symbol = input("What does this symbol represent? (-) ")
84     if subtraction_symbol.lower() == "subtraction":
85         print("Correct!")
86         score += 1
87     else:
88         print("Incorrect!")
89
90     num1 = 9
91     num2 = 5
92     subtraction_answer = num1 - num2
93     print("What is 9 - 5? ")
94     yourAnswer = int(input())
95     if subtraction_answer == yourAnswer:
96         print("Correct!")
97         score += 1
98     else:
99         print("Incorrect!")
100    # Subtraction (-), subtracts 2 numbers.
101
102    multiplication_symbol = input("What does this symbol represent? (*) ")
103    if multiplication_symbol.lower() == "multiplication":
104        print("Correct!")
105        score += 1
106    else:
107        print("Incorrect!")
108
109    num1 = 7
110    num2 = 2
111    multiplication_answer = num1 * num2
112    print("What is 7 * 2? ")
113    your_multiplication_answer = int(input())
114    if multiplication_answer == your_multiplication_answer:
115        print("Correct!")
116        score += 1
117    else:
118        print("Incorrect!")
119    # Multiplication (*), multiplies 2 numbers together.
120
121    division_symbol = input("What does this symbol represent? (/) ")

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122     if division_symbol.lower() == "division":
123         print("Correct!")
124         score += 1
125     else:
126         print("Incorrect!")
127
128     num1 = 10
129     num2 = 2
130     division_answer = num1 / num2
131     print("What is 10 / 2? ")
132     your_division_answer = int(input())
133     if division_answer == your_division_answer:
134         print("Correct!")
135         score += 1
136     else:
137         print("Incorrect!")
138     # Division (/), divides a number by another number.
139
140     exponent_question = input("What tells you to multiply a number by itself
? ")
141
142     if exponent_question.lower() == "exponent":
143         print("Correct!")
144         score += 1
145     else:
146         print("Incorrect!")
147
148     num1 = 4
149     num2 = 2
150     power_answer = num1 ** num2
151     print("What is 4^2? ")
152     your_power_answer = int(input())
153     if power_answer == your_power_answer:
154         print("Correct!")
155         score += 1
156     else:
157         print("Incorrect!")
158     # Exponent (**), is raising a number to the power of another number (
159     # aka, telling you how many times to multiply a number by itself).
160
161     quotient_question = input("What is the whole number you get when you "
"divide? ")
162
163     if quotient_question.lower() == "quotient":
164         print("Correct!")
165         score += 1
166     else:
167         print("Incorrect!")
168
169     print("What is the square root of 4?")
170     square_root_answer = int(input())
171     if square_root_answer == 2 or square_root_answer == -2:
172         print("Correct!")
173     else:
174         print("Incorrect!")
175
176     num1 = 5
177     num2 = 2
178     whole_number_answer = num1 // num2
179     print("What is the quotient for 5/2? ")
180     your_whole_number_answer = int(input())
181     if whole_number_answer == your_whole_number_answer:

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182         print("Correct!")
183         score += 1
184     else:
185         print("Incorrect!")
186         # Floor division, gives you the quotient when you divide 2 numbers,
187         # but rounds it down to the nearest whole number.
188
189         num1 = 9
190         num2 = 4
191         remainder_answer = num1 % num2
192         print("What is the remainder for 9/4? ")
193         your_remainder_answer = int(input())
194         if remainder_answer == your_remainder_answer:
195             print("Correct!")
196             score += 1
197         else:
198             print("Incorrect!")
199             # Modulus (%), gives you the remainder when you divide 2 numbers.
200
201         num1 = 100
202         num2 = 100
203         equal = num1 == num2
204         print("Does 100 = 100")
205         equal_answer = input()
206         if equal_answer.lower() == "yes":
207             print("Correct!")
208             score += 1
209         else:
210             print("Incorrect!")
211             # The equal sign in Python (==) checks if two values are equal to each
212             # other.
213
214         num1 = 800
215         num2 = 200
216         not_equal = num1 != num2
217         print("Does 800 = 200")
218         not_equal_answer = input()
219         if not_equal_answer.lower() == "no":
220             print("Correct!")
221             score += 1
222         else:
223             print("Incorrect!")
224             # The not equal sign in Python (!=) checks if two values aren't equal
225             # with each other
226
227         num1 = 500
228         num2 = 300
229         num3 = 90
230
231         var = num1 > num2 > num3
232         print("Is 300 less than 500 and greater than 90?")
233         greater_than_answer = input()
234         if greater_than_answer.lower() != "yes" or var != True:
235             print("Incorrect!")
236         else:
237             print("Correct!")
238             score += 1
239         # Greater than (>) compares two numbers to see which number is the largest
240
241     print(

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242         "Calculate the radius and the area of a circle with a diameter of 10:"
243     )
244     correct_radius = calculate_radius(10)
245     correct_area = calculate_area(correct_radius)
246     user_answer_radius = int(input("Radius: "))
247     user_answer_area = float(input("Area: "))
248
249     if user_answer_radius == correct_radius:
250         print("Correct!")
251         score += 0.5
252
253     else:
254         print("Incorrect")
255
256     if user_answer_area == correct_area:
257         print("Correct!")
258         score += 0.5
259
260     else:
261         print("Incorrect")
262
263     print("Your score was a", format(score, ".0f") + "/18!")
264     print("Thanks for taking this quiz.")
265     print("If you have any questions email me, lwnghuyen3410", "eagle.fgcu.edu"
266         ,
267         sep="@")
268     print("You go have a", "awesome " * 2 + "day!")
269
270     if score == 18:
271         print("Nice work. :)")
272         break
273     elif score < 18:
274         print("Since you didn't get all the answers correct, would you like "
275             "to take this quiz again? ")
276         go_again = input()
277         if go_again == "yes":
278             print("Please restart the program.")
279             break
280         else:
281             print("You have no choice but to take the quiz again!")
282 # In print statements, (+) combines 2 strings into one and (*) tells the
283 # program to repeat a certain string by a given number of times.

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