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1 Basic Test Results

```
1 Starting tests...
2 Tue Nov 3 19:48:08 IST 2015
3 8976bc4e3248892c157fc1ec6a2f2b07062f8cc6 -
4
5
6 Archive: /tmp/bodek.Ea7NsN/intro2cs/ex2/elinorperl/presubmission/submission
7   inflating: src/README
8   inflating: src/bmi.py
9   inflating: src/calculate_mathematical_expression.py
10  inflating: src/convert_spoon_to_cup.py
11  inflating: src/largest_and_smallest.py
12  inflating: src/quadratic_equation.py
13  inflating: src/shapes.py
14
15 Testing README...
16 Done testing README...
17
18 Running presubmit tests...
19 result_code   calcmath   7    1
20 result_code   calcstr    4    1
21 result_code   conv       3    1
22 result_code   ends       4    1
23 result_code   shape      4    1
24 result_code   quad       6    1
25 Done running presubmit tests
26
27 Tests completed
28
29 Additional notes:
30
31 There will be additional tests which will not be published in advance.
```

2 README

```
1  elinorperl
2  329577464
3  Elinor Perl
4
5  I discussed this project with:
6  Yifat Natovich
7  Talya Adams
8
9  =====
10 + README for ex2 =
11 =====
12
13 =====
14 = Description: =
15 =====
16 This program is split into six mini programs, in which we helped Harry Potter
17 and his friends solve problems to get through quidditch and school.
18 In the first, I defined a function to convert a spoon to a cup/
19 In the second, I took 2 numbers and a function and solved it with a function
20 and afterwards split up the function into separate parameters, solving it in another way.
21 In the third, I compared numbers, deciding on the biggest or smallest.
22 In the fourth, using the function, I solved the quadratic equation based
23 on the data given to me returning a verbal and mathematical answer.
24 In the fifth, based on the user's input, defined one of three shapes' areas.
25 Last but not least, I defined a mathematical function and defined its boundaries
26 and based on my input if the equation falls under its limitations.
27
28 =====
29 = List of submitted files: =
30 =====
31
32 README                                This file
33 bmi.py                                A file defining the ranges of a defined BMI
34 calculate_mathematical_expressions.py A file the once you put in 2 numbers and a mathematical
35                                         function, it will solve it
36 convert_spoon_to_cup.py               A file containing a function that converts a spoon to cup
37 largest_and_smallest.py               A file that takes the minimum and maximum of the 3 numbers.
38 quadratic_equation.py                 A file that returns the answers for the quadratic equation
39                                         once you put numbers in
40 shapes.py                             A file that returns the area of certain shapes with user
41                                         input.
42
43 =====
44 = Special Comments: =
45 =====
46 I used the following reference:
47 stackoverflow.com/questions/3691975/s-format-vs-0-format-vs-formatdocs.python.org/3/library/math.html
```

3 bmi.py

```
1 #####
2 # FILE: bmi.py
3 # WRITER: Elinor Perl , elinorperl, 329577464
4 # EXCERSIZE: intro2cs ex2 2015-2016
5 # DESCRIPTION: A program that returns true or false to the BMI range.
6 #####
7
8 def is_normal_bmi(spells_per_hour,length_of_wand):
9     """Using the given equation, and the defintion of range for the BMI, I defined ranges for true and false.
10    """
11    BMI_equation = spells_per_hour/length_of_wand**2
12    if 18.5 <= BMI_equation <= 24.9:
13        return True
14    if BMI_equation<18.5 or BMI_equation>24.9:
15        return False
```

4 calculate mathematical expression.py

```
1  # FILE: calculate_mathematical_expression.py
2  # WRITER: Elinor Perl , elinorperl, 329577464
3  # EXCERSIZE: intro2cs ex2 2015-2016
4  # DESCRIPTION: A program that prints mathematical functions.
5  #####
6
7  def calculate_mathematical_expression(num1,num2,operation):
8      """Using this function, Hermione will be able to organize the types of problems the Quidditch players need.
9      I defined the elementary arithmetic functions and within them, returning the action between the two numbers.
10      """
11      if operation == "+":
12          return (num1 + num2)
13      elif operation == "-":
14          return(num1 - num2)
15      elif operation == "*":
16          return (num1 * num2)
17      elif (operation == "/" and (num2!=0)):
18          return ((num1/float(num2)))
19      else:
20          return None
21
22  def calculate_from_string(math_function):
23      """I defined a new function, calculating the seperated
24      equation to the screen.
25      """
26      f = math_function.split()
27      return calculate_mathematical_expression(float(f[0]),float(f[2]),f[1])
```

5 convert spoon to cup.py

```
1  # FILE: convert_spoon_to_cup.py
2  # WRITER: Elinor Perl , elinorperl, 329577464
3  # EXCERSIZE: intro2cs ex2 2015-2016
4  # DESCRIPTION: A function that converts cups from spoons.
5  #####
6  def convert_spoon_to_cup(spoon):
7      """Defining a funtion, converting measurments."""
8      cup = spoon/(3.5)
9      return cup
```

6 largest and smallest.py

```
1  # FILE: largest_and_smallest.py
2  # WRITER: Elinor Perl , elinorperl, 329577464
3  # EXCERSIZE: intro2cs ex2 2015-2016
4  # DESCRIPTION: A function that returns the minimum and maximum of 3 sets of numbers.
5  #####
6  def largest_and_smallest(num1,num2,num3):
7      """Calculating and comparing numbers, displaying the
8      minimum and maximum of each set.
9      """
10     if num1 <= num2 <= num3:
11         return (num3,num1)
12     elif num1 <= num3 <= num2:
13         return (num2,num1)
14     elif num2 <= num1 <= num3:
15         return (num3,num2)
16     elif num2 <= num3 <= num1:
17         return (num1,num2)
18     elif num3 <= num1 <= num2:
19         return (num2,num3)
20     elif num3 <= num2 <= num1:
21         return (num1,num3)
```

7 quadratic equation.py

```
1  # FILE: quadratic_equation.py
2  # WRITER: Elinor Perl , elinorperl, 329577464
3  # EXCERSIZE: intro2cs ex2 2015-2016
4  # DESCRIPTION: A function that returns the answers for the quadratic equation accordingly,
5  # firstly with the function input and afterwards external input.
6  #####
7
8  def quadratic_equation(a,b,c):
9      """I defined delta and split it into 3 possible cases,
10      allowing me to apply its answers accordingly
11      """
12      delta = b**2 - 4*a*c
13      if delta < 0:
14          return None,None
15      elif delta == 0:
16          return -b/2*a,None
17      elif delta > 0:
18          ans1 = ((-b -(delta**0.5))/2*a)
19          ans2 = ((-b +(delta**0.5))/2*a)
20          return ans1,ans2
21
22
23  def quadratic_equation_user_input():
24      """Taking input from the user, I split up the equation into split floats,
25      and returned a verbal answer with the mathematical answers
26      """
27      coefficients = input("Insert coefficients a, b, and c: ")
28      c = coefficients.split(' ')
29      answer=quadratic_equation (float(c[0]), float(c[1]), float(c[2]))
30      if answer[0] != None and answer[1] != None:
31          print ("The equation has 2 solutions: {0} and {1}".format(answer[0], answer[1]))
32      elif answer[0] == None and answer[1] == None:
33          print ("The equation has no solutions.")
34      elif answer[0] == None:
35          print ("The equation has 1 solution: {1}".format(answer[1]))
36      elif answer[1] == None:
37          print ("The equation has 1 solution: {0}".format(answer[0]))
```


8 shapes.py

```
1  # FILE: shapes.py
2  # WRITER: Elinor Perl , elinorperl, 329577464
3  # EXCERSIZE: intro2cs ex2 2015-2016
4  # DESCRIPTION: A function that receives external input and returns
5  # the area of the shape and other input by user.
6  #####
7  import math
8  def shape_area ():
9
10     """I took input for the user to choose a shape, based on what they choose
11     they will get the area of the shape,
12     unless they choose an undefined option in which case - none
13     """
14     choose_shape = input("Choose shape (1=circle, 2"
15                          "=rectangle, 3=trapezoid): ")
16
17     if choose_shape == "1":
18         r = float(input())
19         circle_area = (r**2)*math.pi
20         return circle_area
21     if choose_shape == "2":
22         a=float(input())
23         b=float(input())
24         rectangle_area = a*b
25         return rectangle_area
26     if choose_shape == "3":
27         a=float(input())
28         b=float(input())
29         h=float(input())
30         trapezoid_area= ((a+b)/2)*h
31         return trapezoid_area
32     return None
```