



ФАКУЛЬТЕТ Информатика и системы управления
КАФЕДРА Компьютерные системы и сети

Москва, 2017

Задание

Часть 1

Вычислить: $y = (1 - (1 + |\sin(x)|)^{0.5}) / (2 + \cos^2(x))$

Часть 2

Дана последовательность строк. Написать программу обеспечивающую ввод строк и их корректировку (обмене местами слов максимальной и минимальной длины).

Часть 1

Код interface.rb

```
require_relative './main.rb'
print 'Input a number: '
input = gets
number = input.chomp.to_s
if number =~ /^[0-9]+$ /
  print 'y = ', calc(number.to_i)
else
  print 'Wrong type of input'
end
```

Код main.rb

```
def calc(x)
  (1 - (1 + (Math.sin(x)).abs)**1/2) / (2 + Math.cos(x)**2)
end
```

Код test.rb

```
require 'minitest/autorun'
require './main.rb'

class Test < Minitest::Test

  def setup
  end

  def teardown
  end

  def test_ok
    assert_in_delta 0.002, calc(8), 1e-3
  end

  def test_fail
    assert_raises TypeError do
      calc 'eight'
    end
  end
end
```

Скриншоты

```
Input a number: 352352
y = 0.10815923257758303
Process finished with exit code 0
```

Рис.1. Выполнение программы

```
Started

##teamcity[enteredTheMatrix timestamp = '2017-12-24T13:56:32.214+0300']

##teamcity[testCount count = '0' timestamp = '2017-12-24T13:56:32.214+0300']
Run options: --seed 22967

# Running:

##teamcity[testStarted name = 'test_fail' captureStandardOutput = 'true' locationHint = 'ruby_minitest_qn://Test.test_fail' timestamp = '2017-12-24T13:56:32.215+0300']
##teamcity[testFinished name = 'test_fail' duration = '0' timestamp = '2017-12-24T13:56:32.215+0300']
.
##teamcity[testStarted name = 'test_ok' captureStandardOutput = 'true' locationHint = 'ruby_minitest_qn://Test.test_ok' timestamp = '2017-12-24T13:56:32.216+0300']
##teamcity[testFinished name = 'test_ok' duration = '0' timestamp = '2017-12-24T13:56:32.216+0300']
.Finished in 0.00200s
2 tests, 2 assertions, 0 failures, 0 errors, 0 skips

Finished in 0.002125s, 940.9962 runs/s, 940.9962 assertions/s.
2 runs, 2 assertions, 0 failures, 0 errors, 0 skips

Process finished with exit code 0
```

Рис.2. Выполнение теста

Часть 2

Kod interface.rb

```
require_relative './main.rb'
print 'Input a string: '
input = gets
string = input.chomp
if string =~ /[A-Za-z]/
  print 'New string is: ', string_changer(string)
else
  print 'Wrong type of input'
end
```

Kod main.rb

```
def string_changer(str)
  arr = str.split
  a = arr.index(arr.max_by(&:length))
  b = arr.index(arr.min_by {|x| x.length})
  arr[a], arr[b] = arr[b], arr[a]
  arr.join(' ')
end
```

Kod test.rb

```
require 'minitest/autorun'
require './main.rb'

class Test < Minitest::Test

  def setup
  end

  def teardown
  end

  def test_ok
    assert_equal 'horse cat mouse dog', string_changer('cat horse mouse dog')
```

end

end

Скриншоты

```
Input a string: sdasfg sagasa awfsa afw safasgasgasfs safasf
New string is: sdasfg sagasa awfsa safasgasgasfs afw safasf
Process finished with exit code 0
|
```

Рис.3. Выполнение программы

Started

```
##teamcity[enteredTheMatrix timestamp = '2017-12-24T14:00:17.151+0300']

##teamcity[testCount count = '0' timestamp = '2017-12-24T14:00:17.151+0300']
Run options: --seed 57628

# Running:

##teamcity[testStarted name = 'test_ok' captureStandardOutput = 'true' locationHint = 'ruby_minitest_qn://Test.test_ok' timestamp = '2017-12-24T14:00:17.152+0300']

##teamcity[testFinished name = 'test_ok' duration = '0' timestamp = '2017-12-24T14:00:17.152+0300']
.Finished in 0.00100s
1 tests, 1 assertions, 0 failures, 0 errors, 0 skips

Finished in 0.001090s, 917.5128 runs/s, 917.5128 assertions/s.
1 runs, 1 assertions, 0 failures, 0 errors, 0 skips

Process finished with exit code 0
```

Рис.4. Выполнение теста

Вывод

Было создано 2 консольные ruby приложения по выданному условию. Обе программы имеют тесты. Приложения протестированы и работают верно.