

Assignment-3 Design

Tuesday, January 23, 2018 2:33 PM

check-range()

| Value | Expected | Actual |
|------------|-------------------|--------|
| 1, 3, 2 | True | ✓ |
| 1, 2, 2 | True ¹ | ✗ |
| 1, 2, 1 | True ² | ✗ |
| -3, -1, 2 | True | ✓ |
| -2, -1, -2 | True ¹ | ✗ |
| -2, -1, -1 | True ² | ✗ |
| 3, 1, 2 | True ² | ✓ |
| 2, 1, 2 | True ² | ✓ |
| 2, 1, 1 | True ² | ✓ |
| 0, 0, 0 | True ³ | ✓ |

False in all other conditions

1 - Depends, if $1 \leq x \leq 2$ OR
 $1 < x < 2$

2 - program handles far bound mismatch. i.e. $3 \leq x \leq 1$
 $1 \leq x \leq 3$

Value input: Lower Bound, Upper Bound, Test Value

i.e. 1, 3, 2
 ↴ Intentionally
 ↴ made prog
 ↴ return false

\therefore if $(x \leq z)$ and $(z \leq y)$
 ↳ True

if anything else
 ↳ false.

Plan

- 1) Take inputs in main, (x, y, z)
- 2) Pass to check-range function
- 3) ↳ check for mismatch of bounds
- 3)a. ↳ if No Mismatch
- 3)a. i ↳ $x \leq z \leq y$
- 3)a. ii ↳ Result true OR false
- 3)b. ↳ if Mismatch
- 3)b. i ↳ $y \leq z \leq x$
- 3)b. ii ↳ Result true OR false

Bool is-int()

| Value | Expected | Actual |
|--------|----------|--------|
| "1833" | True | ✓ |
| "-1" | True | ✓ |
| "0" | True | ✓ |
| -- | False | ✓ |
| "-0" | True | ✓ |
| "-1-2" | False | ✓ |
| | | |
| | | |
| | | |
| | | |
| | | |

Alternate method, try TypeCast

- 1 - Checks using ASCII if string starts with "-"

Value input: Take a String - Number

i.e. "1833". program rejects

input such as "1A3Q"

Plan

- 1) Take input from user
- 2) Pass input to Bool is-int() function
- 3) check string
- 3)a ↳ For Loop that checks characters using ASCII
- 3)a.i ↳ Enter all characters that pass into a new string.
- 4) Compare equality of strings using ASCII
- 4)a. ↳ if equal
- 4)a.i ↳ check for "-"
- 4)a.i) a ↳ if not more than 1 "-" and at the start of the string
 ↳ Result true OR False
- 4)b. ↳ Result false.

is_float

| Value | Expected | Actual |
|-------|----------|--------|
| 1.2 | True | ✓ |
| .2 | True | ✓ |
| 1. | false | ✓ |
| . | false | ✓ |
| .. | false | ✓ |
| 1.. | false | ✓ |
| 1..2 | false | ✓ |
| ..2 | false | ✓ |
| -1.2 | T | ✓ |
| -1. | F | ✓ |

Value input: Take a string - Number,
if it is a decimal
ie "1.2", is True.
Rejects anything except
for things like ie ".23"

Plan

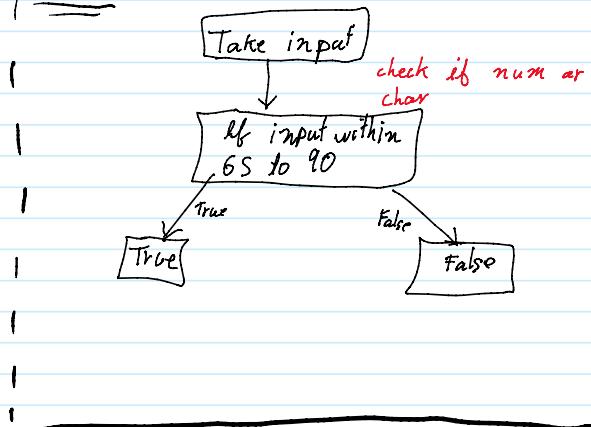
This plan/Design is the same as
is_int, except program checks for
"," and ".."

is_capital

| Value | Expected | Actual |
|-------|----------|--------|
| A | True | |
| a | False | |
| 1 | False | |
| 65 | False | |

Value input: Takes in a character.
If the ASCII value is
65 to 90 (A to Z). Every thing
else returns false

Plan



is-even / is-odd

| Value | Expected | Actual |
|-------|----------|--------|
| 1 | True | ✓ ✓ |
| 2 | False | ✓ ✓ |
| 4 | False | ✓ ✓ |
| 5 | True | ✓ ✓ |
| 5.1 | False | ∞ loop |
| 1.2 | False | ∞ loop |
| 1 | False | ∞ loop |
| | | |
| | | |
| | | |

Value input: takes number see if
modulo → division by 2 results
in 1 or 0.

due to prog only takes int
hence, these inputs are invalid

Plan

Return the remainder
of num divided by 2

| modulo | even | odd |
|--------|-------|-------|
| 0 | True | False |
| 1 | False | True |

First 4 cases
True is changed
to false.
(vice-versa)

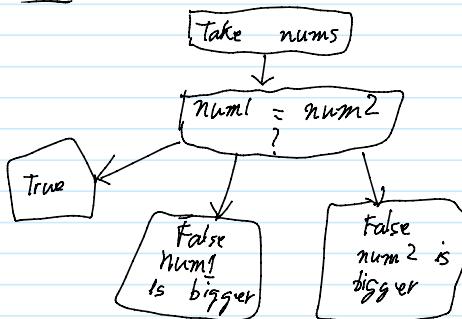
equality-test

| Value | Expected | Actual |
|----------|----------|--------|
| 1, 1 | True | ✓ |
| 0, 0 | True | ✓ |
| 1.1, 1.1 | False | ∞ loop |
| a, b | False | ∞ loop |
| a, a | False | ∞ loop |
| | | |
| | | |
| | | |

Value input: Take 2 numbers and test if they are equal

due to type being 'int'.
Hence, these inputs are invalid.

Plan

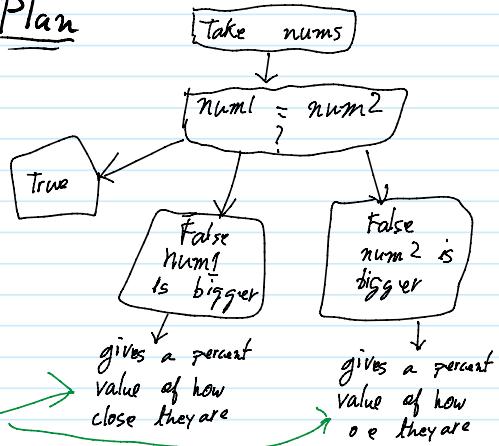


Float - is - equal

| Value | Expected | Actual |
|-----------|----------|--------|
| 1.1, 1.1 | True | ✓ |
| 1.1, 1.2 | False | ✓ |
| 1.2, 1.1 | False | ✓ |
| -1.1, 1.1 | False | ✓ |
| | | |
| | | |
| | | |
| | | |
| | | |

Value input: Takes in decimal values and determines if they are equal

Plan



ask what it is
float precision

gives a percent value of how close they are

gives a percent value of how close they are

Numbers - Present

| Value | Expected | Actual |
|---------|----------|----------------------|
| "12" | True | ✓ |
| "A4" | True | ✓ |
| "ABC" | False | ✓ |
| "/&,\$" | False | ✓ |
| "One" | False | ✓ |
| " " | False | ask for input again. |
| | | |
| | | |
| | | |

Value input: Takes a string i.e "1833 A"
program will return true
or false based on
if there are numbers
in the string

Plan

Similar concept do is_int &
is_float, use Ascii.

48 - 57 (0 - 9)
↳ is true



use For loop with substr,
to go through each char
in string.

letters - present

| Value | Expected | Actual |
|---------|----------|--------|
| "Abc" | True | ✓ |
| "A b C" | True | ✓ |
| "1833" | False | ✓ |
| "12\$" | False | ✓ |
| "1A" | True | ✓ |
| | | |
| | | |
| | | |

Value input: Takes string and determines if there are numbers in it.

Plan

Use ascii
97 - 122 or 65 - 90 (a-z or A-Z)
↳ true

↗ with substr
use For loop to go
through each char in
string

=

Numbers - Present

| Value | Expected | Actual |
|---------|----------|--------|
| "12" | True | ✓ |
| "A4" | True | ✓ |
| "AbC" | False | ✓ |
| "/&,\$" | False | ✓ |
| "One" | False | ✓ |
| " " | False | ✓ |
| | | |
| | | |
| | | |

Value input: Takes a string i.e "1833 A"
program will return true
or false based on
if there are numbers
in the string

Plan

Similar concept do is_int &
is_float, use Ascii.

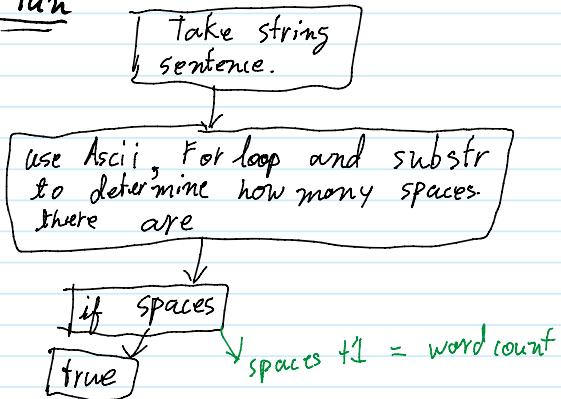
48 - 57 (0 - 9)
↳ is true

contains_sub_string/word count

| Value | Expected | Actual |
|-------------------|----------|--------|
| "AbC" | False | 1 ✓✓ |
| "A b c" | True | 3 ✓✓ |
| "A-b-C" | False | 1 ✓✓ |
| "contains string" | True | 2 ✓✓ |

Value input: Takes a string sentence and determines if there is a substring.
ie "Coffee is Great" true 3
"Coffee_is_Meh" False 1

Plan

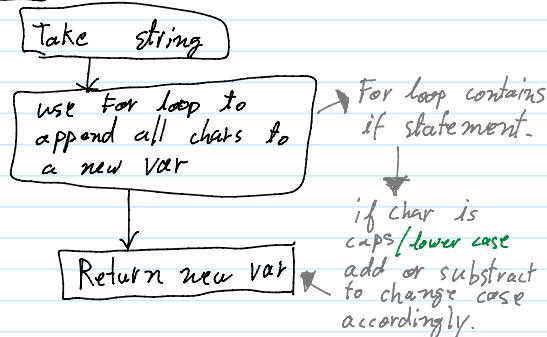


to_upper / to_lower

| Value | Expected | Actual |
|---------|----------|--------|
| "AbcD" | "ABCD" | ✓ |
| "AbcD" | "abcd" | ✓ |
| "I& Ab" | "I& AB" | ✓ |
| "I& Ab" | "I&ab" | ✓ |

Value input: Takes a string sentence
and capitalizes/lower cases all
applicable characters.
"a bCD" \longleftrightarrow ABCd

Plan



Get_int / Get_float

| Value | Expected | Actual |
|-----------|-----------------------|--------|
| "1.1" | asks for proper int | ✓ |
| "-1.1" | asks for proper int | ✓ |
| "1" | 1 | ✓ |
| "-1" | -1 | ✓ |
| "-343" | -343 | ✓ |
| 343 | 343 | ✓ |
| "-1.1" | 1.1 | ✓ |
| "12.345" | 12.345 | ✓ |
| "-12.345" | -12.345 | ✓ |
| "ab24." | asks for proper float | ✓ |

Value input: Takes a string input from user validates it then determines if it is an integer / float - returns a integer / float value.

Plan

