Python

validation

Validation of data

Using a combination of if statements and built in functions, programs can edit in coming data for validity. Having valid data will keep the program from crashing.

Decision

1. Check if number is in range
2. Check for valid codes
3. Check for numbers
4. Check for alpha
5. Check length

Validation

Check if input meets qualifications

Qualifications are:

1. zero, negative
2. Range
3. Numeric
4. Date
5. There is data
6. etc

Use Boolean to:

Check for a range

```
if (a > 99) and (a < 200):
```

Valid codes

```
If (m == ‘a’) or (m == ‘b’) or (m == ‘c’):
```

NOTE

Note how the variable use for checking

```
if (a > 99) and (a < 200):        # range check
```

```
If (m == ‘a’) or (m == ‘b’) or (m == ‘c’):      # code
```

Built in functions

String handling

Length - strings only

Form: var1 = len(var2)

Return length of data or zero

Can be used in condition

```
if (len(var) == 0):
```

or

```
lenname = len(lname)
if (lenname == 0):
```

Current

```
bb = input('Enter Payment: ')
cc = float(bb)
```

or

```
aa = float(input(' Enter Payment - -> '))
```

Checking for data

```
hh = input('Enter Payment: ')
zz = len(hh)
if zz == 0:
    print(' ERROR: must enter a payment')
else:
    pymt = float(hh)
```

Checking for data – style tip

```
hh = input('Enter Payment: ')
if len(hh)  == 0:
    print(' ERROR: must enter a payment')
else:
    pymt = float(hh)
```

Example:

```
# Square root program
import math
def main():
   tnumb = input('Enter a number: ')
   tnumblen = len(tnumb)
   print('Length of input number is : ',tnumblen)
   if tnumblen == 0:
      print(' *****   nothing was type in  ')
   else:
      numb = float(tnumb)
      squroot= math.sqrt(numb)
      print('\nSquare root of ', numb, ' is ', squroot, '\n')
   return
main()
```

Check Variables

Numeric

isnumeric()

check if string is numbers.

str01.isnumeric()

check for 0,1,2,3,4,5,6,7,8,9

isnumeric

1234	True
12ab34	FALSE
12.34	FALSE
1,234	FALSE
12 23	FALSE
.1234	FALSE
9876	TRUE

Alpha checking

isalpha() – string contains alpha characters.

str01.isalpha()

Check for: A-z,a-z

isalpha

ZXCD	TRUE
ZX CD	FALSE
AB23CD	FALSE
AB,CD	FALSE
ZX$ER	FALSE
abcd	TRUE

Alpha numeric checking

isalnum() – string contains numbers and letters.

str01.isalnum()

Check for: A-Z, a-z,0-9

isalnum

ABCD	TRUE
1234	TRUE
AB12CD	TRUE
AB,12	FALSE
12 34	FALSE
12.34	FALSE
ab$er	FALSE
tree	TRUE

isspace

isspace() – check for spaces

str01.isspce()

Check for: spaces (blanks)

```
def main():
    print('\n'*2)
    str01=input('enter characters -> ')
    print('\ninput is --> ', str01)
    print('test isalnum')
    if (str01.isalnum()):
        print('      input is alpha numeric')
    else:
        print('       input is NOT alphanumeric')
    input('hit enter to continue\n')
    print(' test isalpha')
    if (str01.isalpha()):
        print('      input is alpha')
    else:
        print('      input NOT alpha->')
    input('hit enter to continue\n')
    print('test isnumeric')
    if (str01.isnumeric()):
        print('      input is numeric')
    else:
        print('     input is NOT numeric')
main()
```

Try This

Other (do not use)

Isdecimal() – check if string contains decimal (base 10) numbers.

True if all the characters are decimals (0-9)

isdigit() – check if there are digits in the string.

These methods work only on unicode variables.

```
def nextex():
    aa = input('\nhit the enter key to continue\n')
def decide(b):
    if b.isdecimal():
        s = 'True'
    else:
        s = 'FALSE'
    return s
def main():
    s = decide("28212")
    print('    is 28212 decimal: ',s)
    nextex()
    s = decide("282.12")
    print('    is 282.12 decimal: ',s)
    nextex()
    s = decide("aaaaaa")
    print('    is aaaaaa decimal: ',s)
    nextex()
    s = decide("Mo3 nicaG el l22er")
    print('    is Mo3 nicaG el l22er decimal: ',s)
    nextex()
main()
```

Is decimal test

Is digit test

```
def nextex():
    aa = input('\nhit the enter key to continue\n')
def decide(b):
    if b.isdigit():
        a = 'TRUE'
    else:
        a = 'FALSE'
    return a
def main():
    print('')
    s = decide("28212")
    print('    is 28212 a digit: ',s)
    nextex()
    s = decide("282.12")
    print('    is 282.12 a digit: ',s)
    nextex()
    s = decide("aaaaa")
    print('    is aaaaa a digit: ',s)
    nextex()
    s = decide("KK *$* ll ()")
    print('    is KK *$* ll () a digit: ',s)
main()
```

Len review

```
def nextex():
    aa = input('\nhit the enter key to continue\n')
def main():
    print('')
    s = "28212444"
    print('      len >',s,'<  is ',len(s))
    nextex()
    s = "282.12"
    print('      len >',s,'<  is ',len(s))
    nextex()
    s = "32la   dk3"
    print('     len >',s,'<  is ',len(s))
    nextex()
    s = "loiuyt"
    print('      len >',s,'<  is ',len(s))
    nextex()
    s = "$^&*^"
    print('      len >',s,'<  is ',len(s))
    nextex()
    s = ""
    print('       len >',s,'<  is ',len(s))
main()
```

done