

Exercises: Conditional Statements and Loops

Solutions (proposal!)

Exercise 1:

```
n=5;
for i in range(n):
    for j in range(i):
        print('*', end=" ")
    print('\n')

for i in range(n,0,-1):
    for j in range(i):
        print('*', end=" ")
    print('\n')
```

Exercise 2:

```
s = input("Input a string (with letters and digits!): ")
d=l=0
for c in s:
    if c.isdigit():
        d=d+1
    elif c.isalpha():
        l=l+1
    else:
        pass
print("Letters", l)
print("Digits", d)
```

Exercise 3:

```
numbers = (11, 12, 13, 14, 15, 16, 17, 18, 19) # Declaring the tuple
count_odd = 0
count_even = 0
for x in numbers:
    if not x % 2:
        count_even+=1
    else:
        count_odd+=1
print("Number of even numbers :",count_even)
print("Number of odd numbers :",count_odd)
```

Exercise 4:

```
row_num = int(input("Input Test Data - Rows = "))
col_num = int(input("Input Test Data - Columns: "))
# initialize the list with '0'
multi_list = [[0 for col in range(col_num)] for row in range(row_num)]
#print(multi_list)

for row in range(row_num):
    for col in range(col_num):
        multi_list[row][col]= row*col

print(multi_list)
```

Exercise 5:

```
items = []
for i in range(0, 401):
    s = str(i)
    if (int(s[0])%2==0) and (int(s[1])%2==0) and (int(s[2])%2==0):
        items.append(s)
print( ",".join(items))
```

Exercise 6:

```
from random import randint

def random_number(min = 1, max = 100):
    return randint(min, max)

rand_int = random_number()

# print(rand_int)
guess_num =int(input("Guess the number (1 <= x <= 100): "))
while rand_int != guess_num:
    if rand_int > guess_num:
        print("Your guess was to small")
    else:
        print( "Your guess was to big" )
    guess_num = int( input( "Guess the number: " ) )
print('Well guessed! The guess number was:{0:4d}'.format(guess_num))
```

Exercise 6 (with Extension)

```
from random import randint

def random_number(min = 1, max = 100):
    return randint(min, max)

rand_int = random_number()

# print(rand_int)
i = 1
guess_num = int(input("Guess the number (1 <= x <= 100): "))
while rand_int != guess_num:
    if rand_int > guess_num:
        print("Your guess was to small")
    else:
        print("Your guess was to big")
    guess_num = int(input("Guess the number: "))
    i += 1
print('Well guessed! The guess number was:{0:4d} \nand you tried {1:2}
times!'.format(guess_num, i))
```

Exercise 7:

Exercise 07: Draw a christmas tree!

```
def draw(l_z, sign):
    str = ""
    for l in range(1, l_z+1):
        str += sign
    return(str)

hoehe = int(input("Geben Sie die Höhe ein: "))

leer_zeichen = ""
x_zeichen = ""
l_z = 1
x_z = 1

for h in range(1, hoehe+1):
    leer_zeichen = draw(hoehe-l_z, " ")
    x_zeichen = draw(x_z, "x")
    print("{0:s}{1:s}".format(leer_zeichen, x_zeichen))
    l_z += 1
    x_z += 2

for h in range(1, int(hoehe/2)+1):
    leer_zeichen = draw(hoehe-2, " ")
    if hoehe < 5:
        x_zeichen = " x"
    else:
        x_zeichen = "xxx"
    print("{0:s}{1:s}".format(leer_zeichen, x_zeichen))
    l_z += 1
    x_z += 2
```