Assignment 2

Total : 27pts

In [1]:
```
# write a program to print your name and student number using variables and an f-string
name = "Yong Seung Rho"
student_number = "W0447442"
print (f'Name: {name}')
print (f'Student #: {student_number}')
```

```
Name: Yong Seung Rho
Student #: W0447442
```

In [ ]:
```
Name: John Doe
Student #: W0123456
```

Part A - Write Code! (16pts)

For each item below, determine the appropriate Python code to generate the desired output.

In [5]:
```
# write a small program that will ask the user for a number and print out "EVEN" if the number is a even number and noth
# 1 pt
while True:
    ch = input("Enter a number ('e' to exit):")
    if ch == 'e':
        break

    number = int(ch)
    if ((number % 2) == 0):
        print("EVEN")
#    else:
#        print("ODD")
```

```
Enter a number ('e' to exit): 100

EVEN

Enter a number ('e' to exit): 1
Enter a number ('e' to exit): 0

EVEN

Enter a number ('e' to exit): -2

EVEN

Enter a number ('e' to exit): -1
Enter a number ('e' to exit): e
```

In [8]:
```
# write a small program that will ask a user for a single character and print out "letter"
# if it is between the letters 'a' and 'z'
# 2 pts
while True:
    ch = input("Enter a single character (0 to exit):")
    if ch == '0':
        break

    if ch >= 'a' and ch <= 'z':
        print("letter")
    else:
        print("invalid")
```

```
Enter a single character (0 to exit): a

letter

Enter a single character (0 to exit): 1

invalid

Enter a single character (0 to exit): 2

invalid

Enter a single character (0 to exit): -

invalid

Enter a single character (0 to exit): b

letter

Enter a single character (0 to exit): 0
```

In [6]:
```
# ask a user to enter a number and if the number is '12345' print "UNLOCKED!" otherwise have it print "ALARM!"
# 2 pts
while True:
    number = input("Enter a number ('e' to exit):")
    if number == '12345':
        print("UNLOCKED")
    else:
        print("ALARM!")
        if number == 'e':
            break
```

```
Enter a number ('e' to exit): 3

ALARM!

Enter a number ('e' to exit): hi

ALARM!

Enter a number ('e' to exit): 12345

UNLOCKED

Enter a number ('e' to exit): e

ALARM!
```

In [3]:
```
# create a program that will ask a user to input an integer and then output whether the number is "negative", "positive"
# 3 pts
while True:
    ch = input("Enter an integer ('e' to exit):")
    if ch == 'e':
        break

    number = int(ch)
    if number > 0:
        print("positive")
    elif number == 0:
        print("zero")
    else:
        print("negative")
```

```
Enter an integer ('e' to exit): 12

positive

Enter an integer ('e' to exit): -33

negative

Enter an integer ('e' to exit): 0

zero

Enter an integer ('e' to exit): e
```

In [2]:
```
# create a program that solves that age old question,
# "Would you choose $1 Million dollars or get a single penny that doubles every day for a month?"
# (e.g. Day 1 = 1¢, Day 2 = 2¢, Day 3 = 4¢, ..., Day 30 = ?)
# by calculating the total amount you would get on Day 30
# 3 pts
amt = 1
for day in range(1, 30):
    amt = amt * 2

print("The amount on Day 30: $%.2f" % (amt / 100))
if (amt / 100) > 1000000:
    print("I will get a single penny that doubles every day for a month.")
else:
    print("i will choose $1 million dollars")
```

```
The amount on Day 30: $5368709.12
I will get a single penny that doubles every day for a month.
```

In [97]:
```
# create a program that outputs the following pattern, not including the '#'s,
# using loops (i.e. not individual print statements)
# 5 pts

#          o
#         ooo
#        ooooo
#       ooooooo
#      ooooooooo
#     ooooooooooo
#    ooooooooooooo
#   ooooooooooooooo
#  ooooooooooooooooo
# ooooooooooooooooooo
#ooooooooooooooooooooo
# ooooooooooooooooooo
#  ooooooooooooooooo
#   ooooooooooooooo
#    ooooooooooooo
#     ooooooooooo
#      ooooooooo
#       ooooooo
#        ooooo
#         ooo
#          o
for i in range(0, 10):
    for j in range(0, 9 - i):
        print(" ", end='')
    o = i * 2 + 1;
    for k in range(0, o):
        print("o", end='')
    print("")

for i in range(1, 10):
    for j in range(0, i):
        print(" ", end='')
    o = o - 2
    for k in range(0, o):
        print("o", end='')
    print("")
```

```
          o
         ooo
        ooooo
```

```
      OOOOOOO
    OOOOOOOOO
   OOOOOOOOOOO
  OOOOOOOOOOOOO
 OOOOOOOOOOOOOOO
OOOOOOOOOOOOOOOOO
 OOOOOOOOOOOOOOO
  OOOOOOOOOOOOO
   OOOOOOOOOOO
    OOOOOOOOO
     OOOOOOO
      OOOOO
       OOO
        O
```

Part B - Figure it out! (11pts)

For the following, you will need to understand how the program works in order to solve the problem.

In [10]:
```
# modify the following to output the odd numbers "5 3 1 -1 -3 -5"
# 2 pts
#for i in range(0, 5):
#    print(i, end=' ')
for i in range(5, -7, -2):
    print(i, end=' ')
```

```
5 3 1 -1 -3 -5
```

In [44]:
```
# make a single change to make the following statement True
# 1 pt
#10 <= 10 and (True or False) and not (4 < 5)
10 <= 10 and (True or False) and not (4 > 5)
```

Out[44]:
```
True
```

In [18]:
```
# the following program converts the number '1' to the day 'Sunday',
# modify the program so that if the variable 'day' is between 1-7,
# the program will output the corresponding day 'Sunday'-'Saturday'
# 3 pts
#day = 1
#if day == 1:
#    day = "Sunday"
#print(day)
#day = 1
while True:
    ch = input("Enter a number between 1-7:")
    if ch < '1' or ch > '7':
        break;

    day = int(ch)
    if day == 1:
        day = "Sunday"
    elif day == 2:
        day = "Monday"
    elif day == 3:
        day = "Tuesday"
    elif day == 4:
        day = "Wednesday"
    elif day == 5:
        day = "Thursday"
    elif day == 6:
        day = "Friday"
    elif day == 7:
        day = "Saturday"
    else:
        day = "Invalid"
    print(day)
```

```
Enter a number between 1-7: 1

Sunday

Enter a number between 1-7: 2

Monday

Enter a number between 1-7: 3
```

```
Tuesday

Enter a number between 1-7: 4

Wednesday

Enter a number between 1-7: 5

Thursday

Enter a number between 1-7: 6

Friday

Enter a number between 1-7: 7

Saturday

Enter a number between 1-7: 8
```

In [104]:
```
# determine what value to change the variable "magic_num" to in order to print out the message
# 5 pts

magic_num = 0

# magic_num decreases by 35(5 * -7) every for-statement and while-statement runs 15(129 / 9) times
# so magic_num will be -525(-35 * 15). Therefore, the initial magic_num should be 525.
magic_num = 525

# don't modify the following code
check = 0
while check < 129:
    for i in range(0, 5):
        magic_num -= 7
    check += 9
if magic_num == 0:
    print("You found the magic number!")
else:
    print("Not yet. Keep trying!")
```

```
You found the magic number!
```

In [ ]:
```

```