Assignment 2

Total : 26pts

In [27]:
```
# write a program to print your name and student number
# using variables and variable substitution
# 1 pt

name = "Christina Corkum"
student_number = "W0524094"
print(f"Name: Christina Corkum")
print(f"Student #: W0524094")
```

```
Name: Christina Corkum
Student #: W0524094
```

Sample Output

Name: John Doe

Student #: W0123456

Part A - Practice (16pts)

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

Note: Ensure you read each direction carefully! You will lose points for not producing the correct output.

---

1. Write a small program that takes a numeric variable as input.
   Print out "EVEN" if the value is a even number and do nothing if it is odd.

   1 pt

In [1]:
```
# this number could be any value
# feel free to change it to test your code
number = 10 # could be 1, 5, 8, etc...

# add your code here
# check if the number is even
if number % 2 == 0:
    print("EVEN")
```

```
EVEN
```

2. Write a small program that will look at a single character and print out "**letter**", if it is between the letters '**a**' and '**z**' (inclusive).

2 pts

In [5]:
```
# this character could be any viewable character
# feel free to change it to test your code
character = 'x' # could be '$', 'p', '*', 'w', etc...

# add your code here
char = input("Enter a character: ")
if 'a' <= char <= 'z':
    print("letter")
```

```
letter
```

3. Compare a given number and if the number is '12345' (secret code), print "UNLOCKED!" otherwise have it print "ALARM!"

2 pts

In [9]:
```
# assume this is the number that was entered by the user
# it could be anything, including the correct combination
code = "12346" # try different values here

# add your code here
num = input("Enter a number: ")
if num == "12345":
    print("UNLOCKED!")
else:
    print("ALARM!")
```

```
UNLOCKED!
```

4. Given an integer, determine and then output whether the number is "negative", "positive" or "zero".

3 pts

In [19]:
```
# this could be any valid integer
integer = -5 # try different integers to test your code

# add your code here
number = int(input("Enter a integer: "))
if number > 0:
    print("positive")
elif number < 0:
    print("negative")
else:
    print("zero")
```

```
zero
```

5. 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 = ?)
   Calculate the total amount you would get on Day 30
   Note 1: just output the amount you would have on Day 30, don't include other amounts
   Note 2: display the amount in dollars, not pennies

   3 pts

In [23]:
```
# add your code here
# Calculate penny doubling for 30 days
penny = 1  # Start with 1 penny
days = 30

for day in range(1, days):
    penny = penny * 2

# Convert to dollars and display
total_dollars = penny / 100  # Convert pennies to dollars
print(f"${total_dollars:,.2f}")
```

```
$5,368,709.12
```

6. Create a program that outputs the following pattern using loops. (i.e. not individual print statements) Try to challenge yourself to make the code in the least number of lines. 5 pts o ooo ooooo ooooooo oooooooo ooooooooo oooooooooo ooooooooooo oooooooooooooo ooooooooooooooo oooooooooooooooo ooooooooooooooo oooooooooooooo ooooooooooooo oooooooooooo ooooooooo oooooooo ooooooo ooooo ooo o

In [26]:
```
# add your code here
for i in range(-9, 10): print(" " * abs(i) + "o" * (19 - 2 * abs(i)))
```

```
         o
        ooo
       ooooo
      ooooooo
     ooooooooo
    ooooooooooo
   ooooooooooooo
  ooooooooooooooo
 ooooooooooooooooo
ooooooooooooooooooo
 ooooooooooooooooo
  ooooooooooooooo
   ooooooooooooo
    ooooooooooo
     ooooooooo
      ooooooo
       ooooo
        ooo
         o
```

Part B - Understand (9pts)

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

7. Modify the following to output the odd numbers "5 3 1 -1 -3 -5" 2 pts

```
# original code
output = ""
for i in range(0, 5):
    output += f"{i} "
}
print(output)
```

In [34]:
```
# modify this code
output = ""
for i in range(5, -6, -2):
    output += f"{i} "
print(output)
```

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

8. Make a **single** change to the expression in the following 'if' statement to make the statement 'true' and successfully print the desired output.

   1 pt

```
# original code
if not (5 < 10) and (True != False) or ('apple' > 'orange'):
    print("Success!")
else:
    print("Not yet...")
```

In [35]:
```
# modify this code
if not (5 < 10) and (True != False) or ('orange' > 'apple'):
    print("Success!")
else:
    print("Not yet...")
```

```
Success!
```

9. 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 of the week. (i.e.'Sunday' thru 'Saturday').

   3 pts

```
# original code
day = 1 # this value could be 1 - 7
if day == 1:
```

```
        day = "Sunday"
    print(day)
```

In [36]:
```
# modify this code
day = 1  # this value could be 1 - 7

# List of days, index 0 = Sunday (for day == 1)
days_of_week = ["Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "

if 1 <= day <= 7:
    day = days_of_week[day - 1]

print(day)
```

```
Sunday
```

10. Determine what value to change the variable "magic_num" to in order to print out the message.

    3 pts

```
# Just change the number to the real magic number! Yep, that's it!
# Please keep your answer from others. The fun is solving the puzzle
after all!
magic_num = 0

# don't modify the following code
check = 0
while (check < 132):
    for i in range(9):
        magic_num -= 4
    check += 7

if magic_num == 0:
    print("You found the magic number!")
else:
    print("Not yet. Keep trying!")
```

In [13]:
```
# Just change the number to the real magic number! Yep, that's it!
# Please keep your answer from others. The fun is solving the puzzle after all!
magic_num = 684

# don't modify the following code
check = 0
while (check < 132):
    for i in range(9):
        magic_num -= 4
    check += 7

if magic_num == 0:
```

```
    print("You found the magic number!")
else:
    print("Not yet. Keep trying!")
```

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

In [ ]: