

## Junior Knights Week #7 Python Homework: While Loop

### Part A: Sum Even (sumeven.py)

#### **REWRITE THIS QUESTION TO USE A WHILE LOOP!!!**

Write a program that asks the user to enter a positive integer  $n$ , and calculates the sum of the integers  $2 + 4 + 6 + \dots + 2n$  and prints this total to the screen.

#### Sample Run

**Enter a positive integer.**

5

**The sum of the first 5 even integers is 30.**

### Part B: Guessing Game (guess.py)

Write a program that generates a random number in between 1 and 100, inclusive, and then asks the user to make a guess. If their guess is too low, tell the user to guess higher. If it's too high, tell them to guess lower. When the user guesses the correct number, print out the number of guesses they took to do so and end the program.

#### Sample Run

**Enter your guess in between 1 and 100.**

50

**Your number is too high. Guess lower.**

25

**Your number is too low. Guess higher.**

40

**Your number is too low. Guess higher.**

43

**Great! You got the correct number 43 in 4 guesses!**

### Part C: Check Collector (check.py)

Edit the program shown in class today that reads in checks until the user enters a -1 so that all checks over 100 dollars are not counted. Print out the sum of all the checks that are 100 dollars or less.

#### Sample Run

**Enter the value of all of your checks, ending with -1.**

50

30

25

101

100

1000

-1

**You have collected a total of \$205 with checks of \$100 or less.**

#### Part D: Check Collector Edit (check2.py)

In addition to keeping track of checks that are \$100 or less, keep track of the sum of checks that are over \$100 and print out this value as well as the total number of each type of donation and print out all of this information.

#### Sample Run

**Enter the value of all of your checks, ending with -1.**

*50*

*30*

*25*

*101*

*100*

*1000*

*-1*

**You collected 4 checks of \$100 or less for a total of \$205.**

**You collected 2 checks of \$101 or more for a total of \$1101.**

**In all, you got 6 checks for a total of \$1306.**

#### Part E: Marble Game (marbles.py)

Write a program that allows to players to play the marble game. In the marble game, you ask the first player how many marbles to start with. Then, the game begins. The first player must take 1, 2 or 3 marbles. Then the second player goes and must take 1, 2 or 3 marbles. The winner is the player who takes the last marble. Allow two users to play this game and print out the winner (player #1 or player #2). Assume that both players enter valid inputs (1, 2 or 3, and they never try to take more marbles than there are in the pile.)

#### Sample Run

**How many marbles will you be playing with?**

*10*

**Player #1, there are 10 marbles left.**

**How many marbles will you take?**

*3*

**Player #2, there are 7 marbles left.**

**How many marbles will you take?**

*2*

**Player #1, there are 5 marbles left.**

**How many marbles will you take?**

*1*

**Player #2, there are 4 marbles left.**

**How many marbles will you take?**

*1*

**Player #1, there are 3 marbles left.**

**How many marbles will you take?**

*3*

**Player #1, you took the last marble and have won!**