

1. We worked together to design a program to simulate playing the game of Lucky Sevens (Project 11 from Chapter 3.) until the user runs out of money. At that point, the program prints the number of rolls it took to break the player, as well as maximum amount of money in the pot.

We pretty much wrote the following program with the function `playTheGameUntilPotIsGone` remaining to be completed. (I had to guessing at the function name we used in class--I did not write them down...)

```
"""
File: luckySevens.py
Author: Mark Fienup with design help from Intro. class
Description: Simulates a user playing games of Lucky Sevens until they lose all of their
money. In Lucky Sevens the player rolls a pair of dice. If the dice add up to 7, the
player wins $4; otherwise, the player loses $1.
```

Input: the user will be asked to enter the amount of money in the initial pot.

Output: A trace/log of play until the pot is empty. At that point, the program prints the number of rolls it took to break the player, as well as maximum amount of money in the pot.

```
"""
import random

def main():
    """ Simulates the playing of Lucky Seven until the user breaks"""
    printWelcomeAndRules()
    initialPot = input("Enter the amount of the initial pot: ")
    rolls, maxPot = playTheGameUntilPotIsGone(initialPot)
    print "The number of rolls it took to lose all $",initialPot, "was", rolls, "."
    print "The maximum amount of money in the pot during play was",maxPot

def printWelcomeAndRules():
    """Prints a welcome and rules of Lucky Seven"""
    print "Welcome to Lucky Sevens Simulator!\n"
    print "We'll simulate you playing games of Lucky Sevens"
    print "until you lose all of your money.\n"
    print "After the simulation, we'll print the number of rolls"
    print "it took for you to lose all your money, and "
    print "the maximum amount of money in the pot.\n"

def sumOfPairOfDice():
    """ Random rolls a pair of 6-sided dice and returns their sum"""
    die1 = random.randint(1,6)
    die2 = random.randint(1,6)
    return die1 + die2

def playTheGameUntilPotIsGone(pot):
    """ Simulates playing Lucky Seven until the pot is gone"""
```

```
main()
raw_input("Hit any key to close")
```

2. We want to write a program to display all of the prime numbers from 1 through 100. A prime number is a number that is only evenly divisible by itself and 1. For example, the number 5 is prime because it can only be evenly divided by 1 and 5. However, the number 6 is not prime since it can be evenly divided by 1, 2, 3, and 6.

Read the specifications carefully. Try to identify:

a) What would the user's interaction with the program look like?

b) We want the `main` function to act as an outline of the program and contain at most:

- the "main loop": What would be the main loop for this program?
- function calls to perform difficult subproblems. What high-level subproblems does our program need to perform? (Think about what arguments each subprogram needs to be passed or user input needed, and what type of information is returned to the caller)