Assignment 1: The below program is to Roll the Dice

```
import random
def fun(s):
   n=random.randint(1, s)
   return n

def main():
   s=6
   r1=True
   while r1:
      r2=input("Ready to roll? Enter Q to Quit")
      if r2.lower() !="q":
         n=fun(s)
         print("You have rolled a",n)
      else:
         r1=False
```

Solution

```
import random
def generateRandomNumber(maxValue):
          return random.randint(1,maxValue)


def rollTheDice():
          maxDiceValue = 6
          continueRolling = True
          userInput = input("Ready to roll? Enter Q to Quit: ")
          if userInput.lower() != "q":
                    rollResult = generateRandomNumber(maxDiceValue)
                    print("You have rolled a", rollResult)
          else:
                    continueRolling = False
```

Assignment 2: The below program is to guess the correct number between 1 to 100

```
def fun(s):
   if s.isdigit() and 1<= int(s) <=100:
      return True
   else:
      return False

def main():
   n=random.randint(1,100)
   gn=False
```

```
  g=input("Guess a number between 1 and 100:")
  ng=0
  while not gn:
    if not fun(g):
      g=input("I wont count this one Please enter a number between 1 to 100")
      continue
    else:
      ng+=1
      g=int(g)

    if g<n:
      g=input("Too low. Guess again")
    elif g>n:
      g=input("Too High. Guess again")
    else:
      print("You guessed it in",ng,"guesses!")
      gn=True

main()
```

Solution

```
def checkNumberRange(number):
        if number.isdigit() and 1 <= int(number) <= 100:
                return True
        else:
                return False

def guessTheNumberGame():
        numberToGuess = random.randint(1,100)
        isCorrectGuess = False
        guessedNumber = input("Guess a number between 1 and 100:")
        guessedAttempts = 0
        while not isCorrectGuess:
                if not checkNumberRange(guessesNumber):
                        guessedNumber = input("I wont count this one Please enter a number
between 1 to 100")
                        continue
                else:
                        guessedAttempts += 1
                        guessedNumber = int(guessedNumber)
                if guessedNumber < numberToGuess:
                        g=input("Too low. Guess again")
                elif guessedNumber > numberToGuess:
                        g=input("Too High. Guess again")
                else:
```

```
                print("You guessed it in",guessesAttempts,"guesses!")
                isCorrectGuess = True

guessTheNumberGame()
```

Assignment 3: The below program is to check whether the number is Armstrong number or not

```
def fun(N):
   # Initializing Sum and Number of Digits
   s = 0
   t = 0

   # Calculating Number of individual digits
   t2 = N
   while t2 > 0:
      t = t + 1
      t2 = t2 // 10

   # Finding Armstrong Number
   t2 = N
   for n in range(1, t2 + 1):
      R = t2 % 10
      s = s + (R ** t)
      t2 //= 10
   return s


# End of Function

# User Input
N2 = int(input("\nPlease Enter the Number to Check for Armstrong: "))

if (N2 == fun(N2)):
   print("\n %d is Armstrong Number.\n" % N2)
else:
   print("\n %d is Not a Armstrong Number.\n" % N2)
```

Solution

```
# User Input
number = int(input("\nPlease Enter the Number to Check for Armstrong: "))
```

```
if (number == fun(number)):
   print("\n %d is Armstrong Number.\n" % number)
else:
   print("\n %d is Not a Armstrong Number.\n" % number)


def isArmstrong(number):
        # Initializing Sum and Number of Digits
        sumOfPowersOfNumbers = 0
        numberOfDigits = 0

        # Calculating Number of individual digits
        temporaryNumber = number
        while temporaryNumber > 0:
                numberOfDigits += 1
                temporaryNumber = temporaryNumber // 10

        # Finding Armstrong Number
        temporaryNumber = number
        for digitNumber in range(1, temporaryNumber + 1):
                digit = temporaryNumber % 10
                sumOfPowersOfNumbers = sumOfPowersOfNumbers + (digit **
numberOfDigits)
                temporaryNumber //= 10
        return sumOfPowersOfNumbers
```