ASSIGNMENT-2

1. Write a function to check whether a number falls in a given range.

Solution: def test\_number(n,T1,T2):

if n in range(T1,T2):

print(n,'is in the given range')

else:

print(n,'is not in given range')

test\_number(10,1,8)

1. Some board games require you to reduce the number of cards you are holding by half, rounded down. For instance, if you have 10 cards, you would reduce to 5 and if you had 11 cards you would also reduce to 5. With 12 cards you would reduce to 6. Write a program that asks the user to enter how many cards they have and print out what their hand would reduce to under this rule.

Solution: import math

def board\_game(cards):

cards=cards/2

cards=math.floor(cards)

print(cards)

board\_game(3)

1. Write a program that asks the user to enter a positive integer. Then generate a random number between that number and 10 more than that number and print the letter A that many times on the same line.

Solution: import random

a=int(input('enter input number'))

b=a+10

n=random.randint(a,b)

print(n, 'is a random number')

list1=[]

for i in range (n):

list1.append('A')

print(list1)

1. This is a very simple billing program. Ask the user for a starting hour and ending hour, both given in 24-hour format (e.g., 1 pm is 13, 2 pm is 14, etc.). The charge to use the service is $5.50 per hour. Print out the user’s total bill. You can assume that the service will be used for at least 1 hour and never more than 23 hours. Be careful to take care of the case that the starting hour is before midnight and the ending time is after midnight.

Solution: S\_hour=int(input('enter starting hour:'))

E\_hour=int(input('enter ending hour:'))

if E\_hour < 23 and S\_hour> 0:

work=E\_hour-S\_hour

amount=work\*5.5

print('The amount paid is $',amount)

else:

print('Wrong information')

1. One way to estimate probabilities is to run what is called a computer simulation. Here we will estimate the probability of rolling doubles with two dice (where both dice come out to the same value). To do this, run a loop 10,000 times in which random numbers are generated representing the dice and a count is kept of how many times doubles appear. Print out the final percentage of rolls that are doubles.

Solution: import random

from collections import Counter

dice=[]

n=10000

for i in range(n):

x=random.randint(1,n)

dice.append(x)

d=dict(Counter(dice))

keys = [k for k, v in d.items() if v == 2]

length=len(keys)

print(length)

percentage=(length/10000)\*100

print(percentage)