

Week 12 Programming Assignment

Question 1

```
count = 0;
def collatz(num):
    global count
    count+=1
    if(num%2==0 and num>1):
        return collatz(num/2)
    if(num%2!=0 and num>1):
        return collatz(num*3+1)
    return count-1
num = int(input())
print(collatz(num),end="")
```

Question 2

```
def find_sad_happy(num):
    recur(num,0)

count = 3
def recur(happy,sad):
    global count
    if count>0:
        count-=1
        recur(happy*0.3 + sad*0.5, happy*0.7+sad*0.5)
    else:
        print(int(happy), int(sad),end="")

num = int(input())
find_sad_happy(num)
```

Question 3

```
def check_prime(num):
    if num==2 or num==3:
        return True
    i = 2
    flag = True
    while(i*i <= num):
        if(num%i != 0):
            i+=1
        else:
            flag = False
            break

    return flag

num = int(input())
sum = 0

for i in range(2,num+1):
    if check_prime(i) == True:
        sum += i

print(sum,end="")
```