Exercise:4.1.1

class Node:

def \_\_init\_\_(self,data):

self.data=data

self.next=None

class Queue:

def \_\_init\_\_(self):

self.front=None

self.rear=None

def is\_empty(self):

return self.front is None

def enqueue(self,data):

new\_node=Node(data)

if self.rear is None:

self.front=self.rear=new\_node

return

self.rear.next=new\_node

self.rear=new\_node

def dequeue(self):

if self.is\_empty():

return None

data=self.front.data

self.front=self.front.next

if self.front is None:

self.rear=None

return data

def peek(self):

if self.is\_empty():

return None

return self.front.data

def size(self):

count=0

current=self.front

while current:

count+=1

current=current.next

return count

q=Queue()

q.enqueue(10)

q.enqueue(20)

q.enqueue(30)

print("queue element:",end="")

while not q.is\_empty():

print(q.dequeue(),end="")

print("\n Is the queue empty?",q.is\_empty())

output:

queue element:102030

Is the queue empty? True