DATA STRUCTURE
SECOND CLASS
LAB 7

PREPARED BY:

Ahmed Eskander Mezher

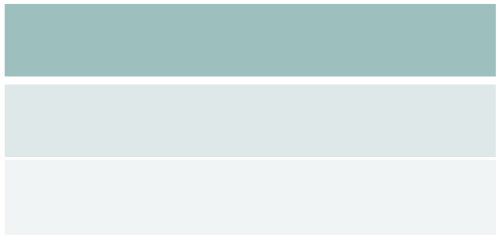
AYOOB ABDULMUNEM

Lecture Outline: -

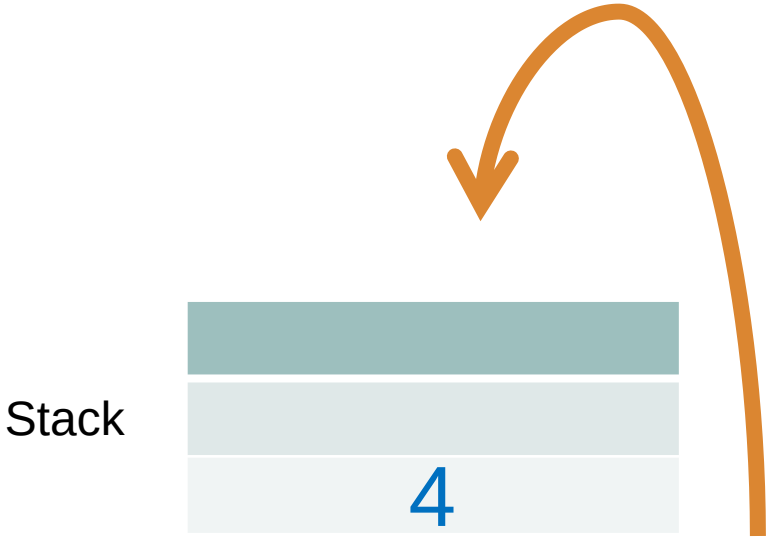
1- Stack

```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0:return ('stack is empty')
    else:
        return stack.pop()
stack = create()
push(stack,4)
push(stack,8)
push(stack,2)
print(pop(stack))
print(pop(stack))
print(pop(stack))
print(pop(stack))
```

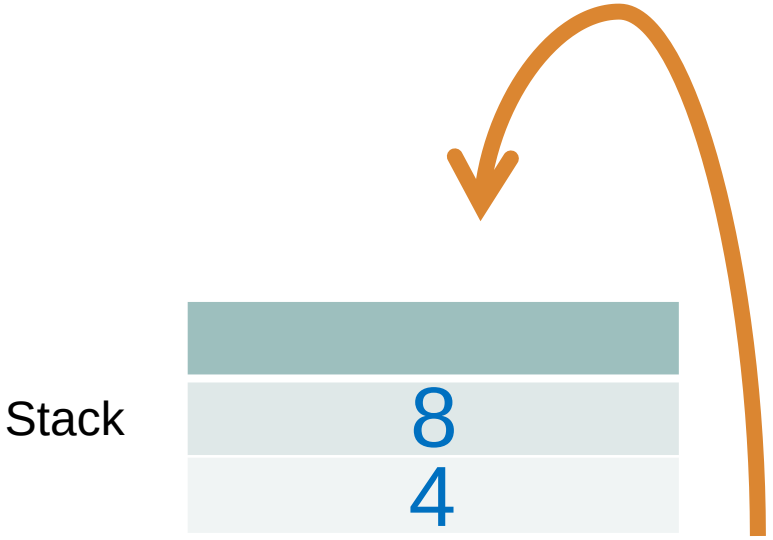
Stack



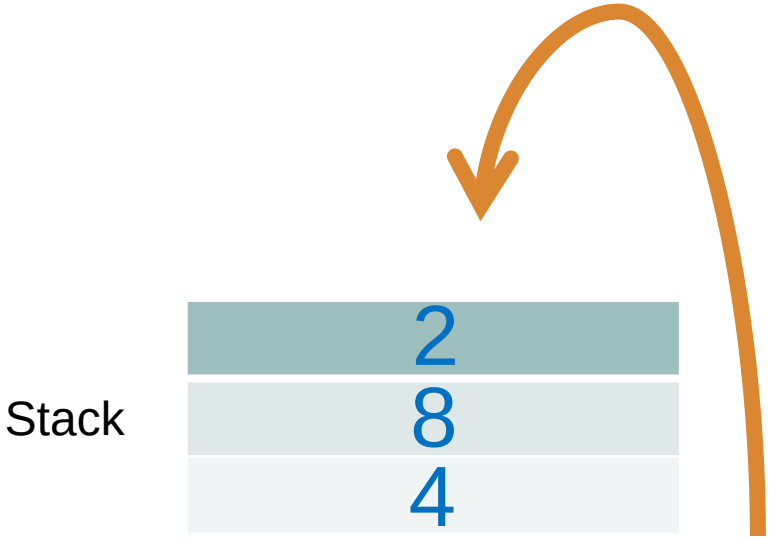
```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0: return ('stack is empty')
    else:
        return stack.pop()
stack = create()
push(stack,4)
push(stack,8)
push(stack,2)
print(pop(stack))
print(pop(stack))
print(pop(stack))
print(pop(stack))
```



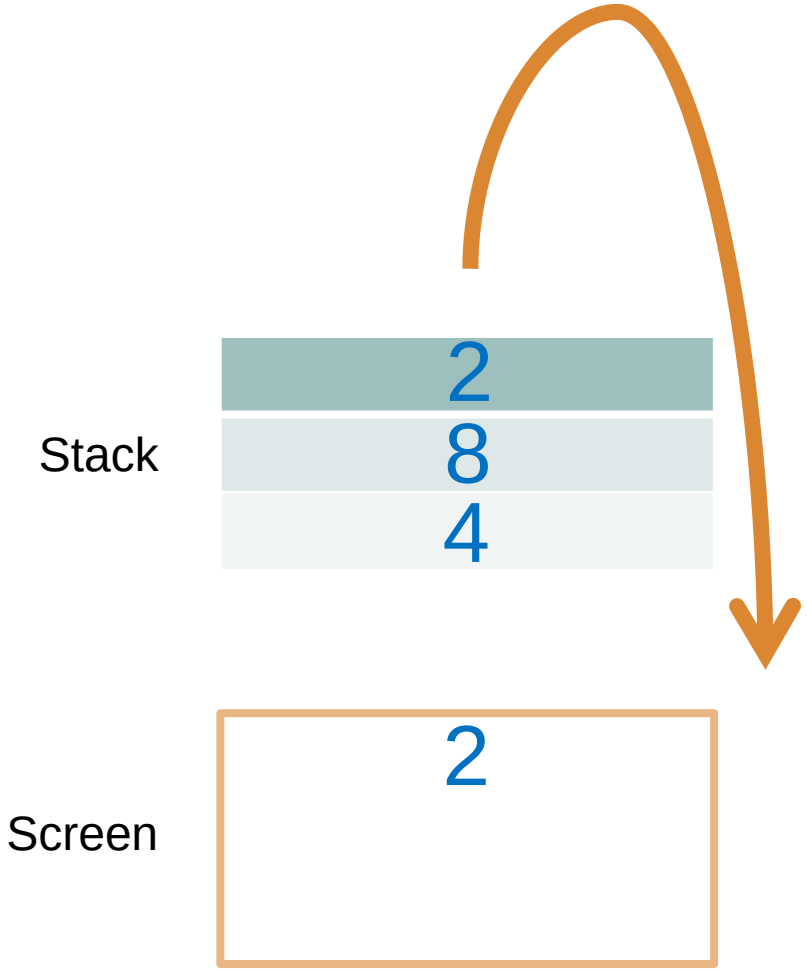
```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0: return ('stack is empty')
    else:
        return stack.pop()
stack = create()
push(stack,4)
push(stack,8)
push(stack,2)
print(pop(stack))
print(pop(stack))
print(pop(stack))
print(pop(stack))
```



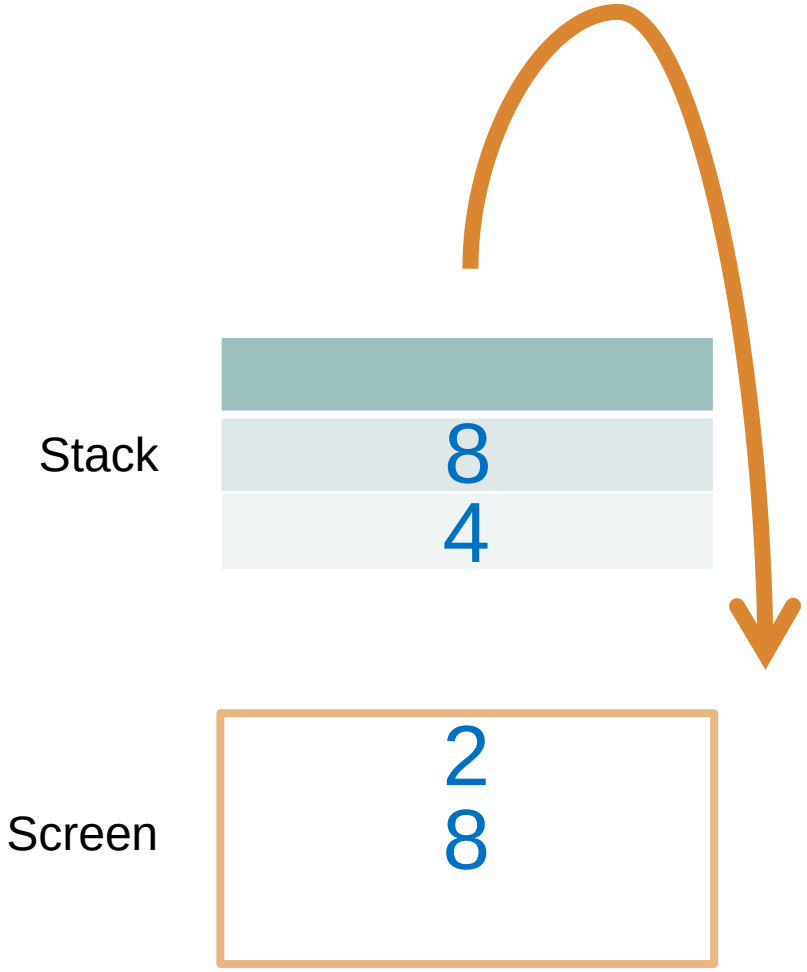
```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0: return ('stack is empty')
    else:
        return stack.pop()
stack = create()
push(stack,4)
push(stack,8)
push(stack,2)
print(pop(stack))
print(pop(stack))
print(pop(stack))
print(pop(stack))
```



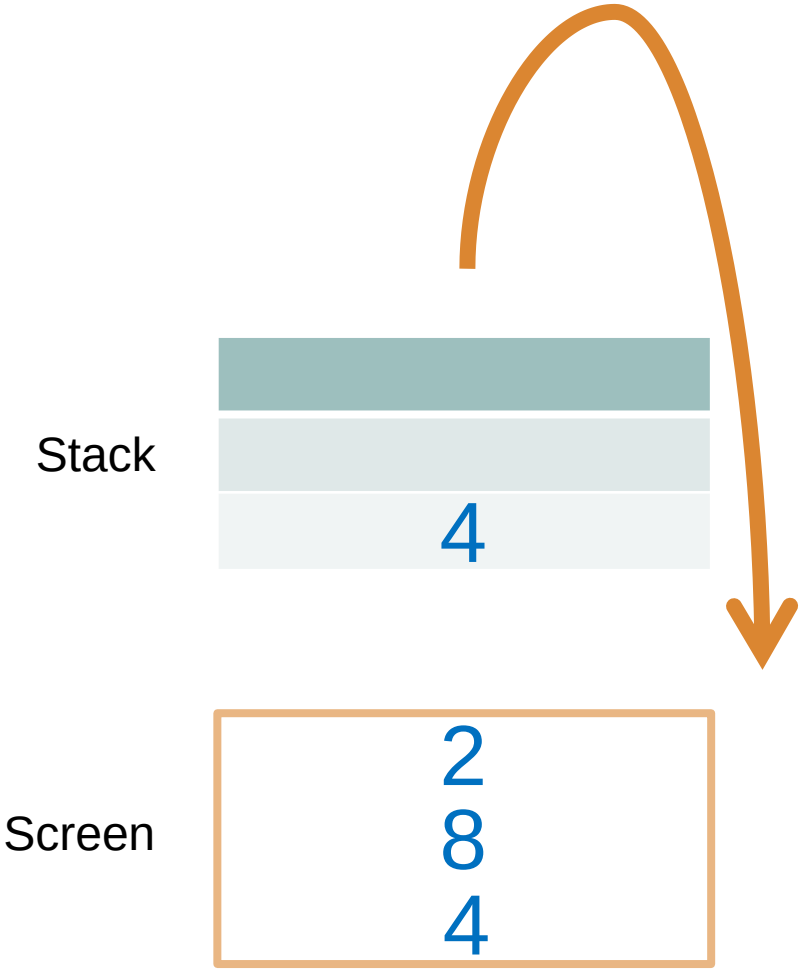
```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0: return ('stack is empty')
    else:
        return stack.pop()
stack = create()
push(stack,4)
push(stack,8)
push(stack,2)
print(pop(stack))
print(pop(stack))
print(pop(stack))
print(pop(stack))
```



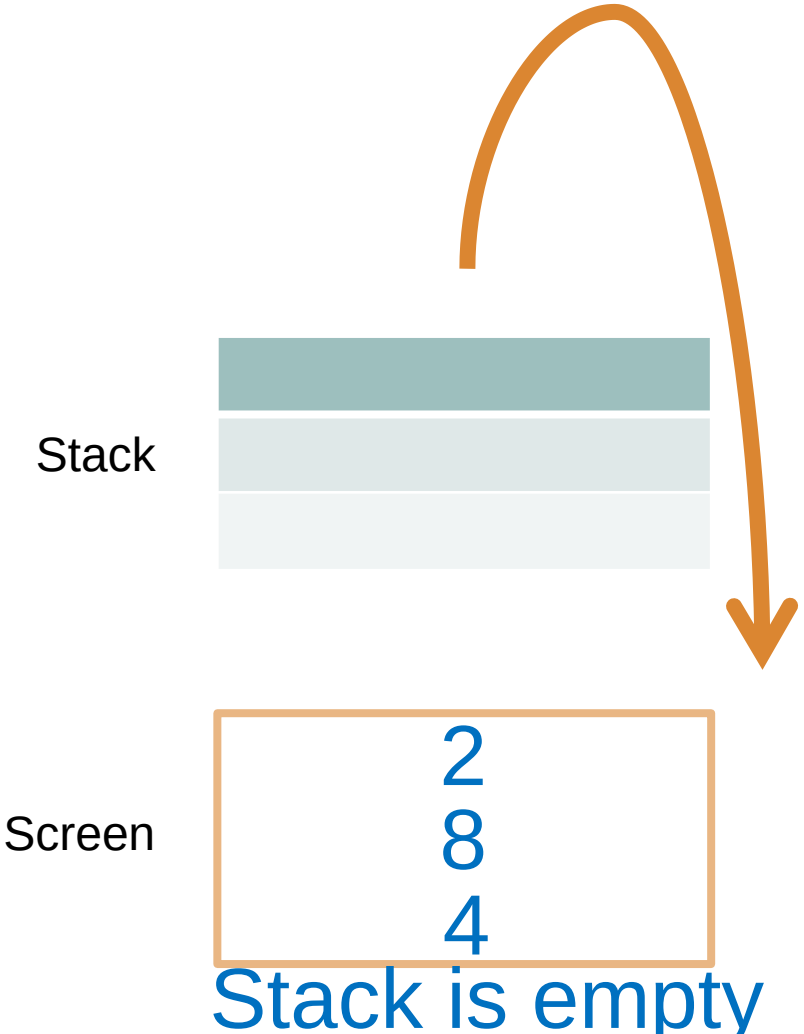
```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0: return ('stack is empty')
    else:
        return stack.pop()
stack = create()
push(stack,4)
push(stack,8)
push(stack,2)
print(pop(stack))
print(pop(stack))
print(pop(stack))
print(pop(stack))
```



```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0: return ('stack is empty')
    else:
        return stack.pop()
stack = create()
push(stack,4)
push(stack,8)
push(stack,2)
print(pop(stack))
print(pop(stack))
print(pop(stack))
print(pop(stack))
```

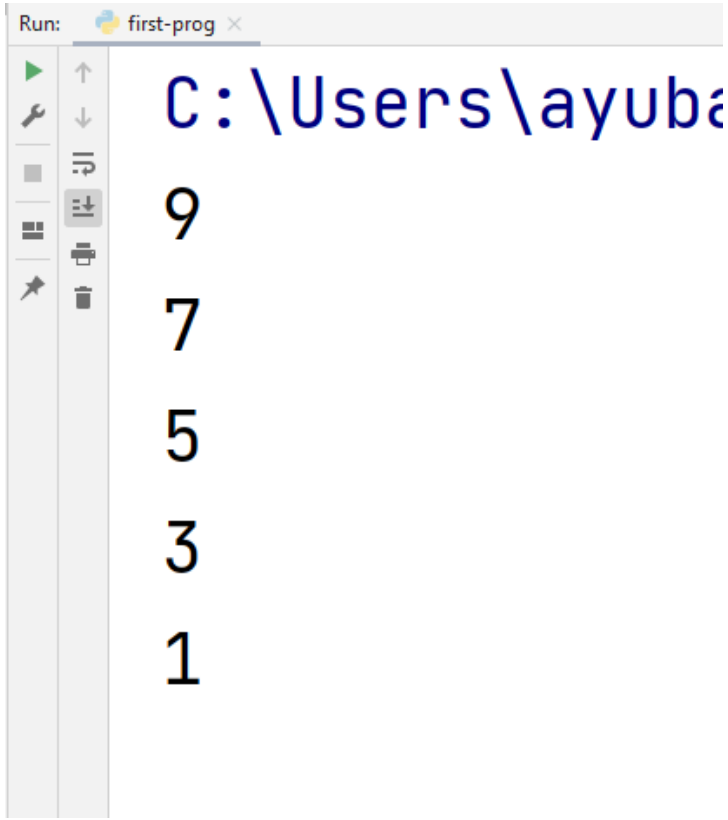


```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0: return ('stack is empty')
    else:
        return stack.pop()
stack = create()
push(stack,4)
push(stack,8)
push(stack,2)
print(pop(stack))
print(pop(stack))
print(pop(stack))
print(pop(stack))
```



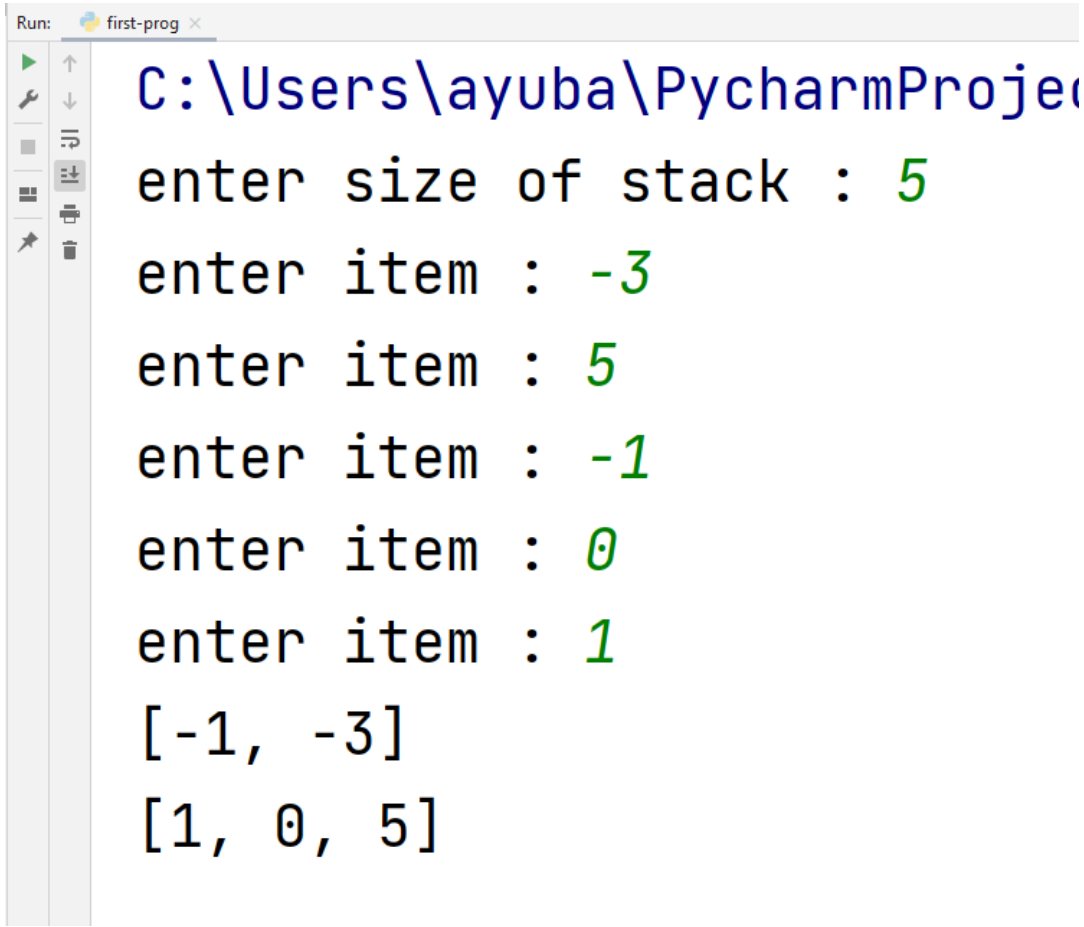
Write a program to add all odd numbers from 1 to 10 in the stack.

```
def create():
    return []
def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0:return ('stack is empty')
    else:
        return stack.pop()
def main():
    stack = create()
    for i in range(1,10,2):
        push(stack,i)
    for i in range(len(stack)):
        print(pop(stack))
main()
```



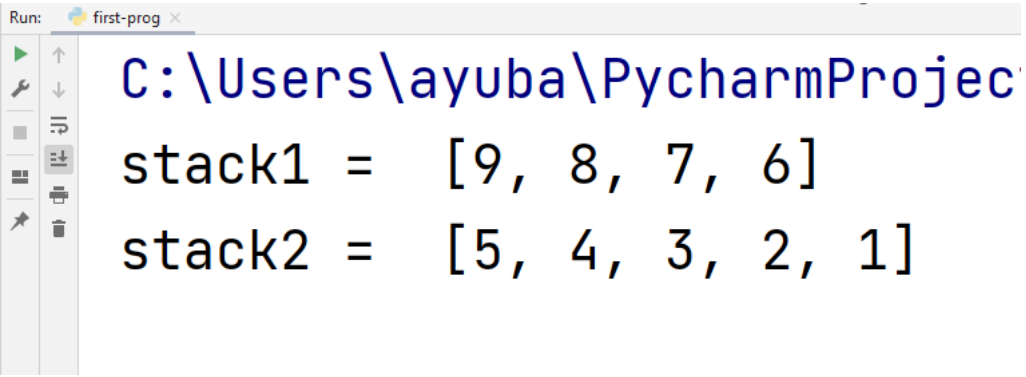
Write a program to add numbers to a stack by the user,
then split the stack into two stacks, negative and positive stack.

```
def create():
    return []

def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0: return ('stack is empty')
    else:
        return stack.pop()
def main():
    stack = create()
    size=int (input('enter size of stack : '))
    for i in range(size):
        x=eval(input('enter item : '))
        push(stack,x)
    stackNeg=create()
    stackPos=create()
    for i in range(len(stack)):
        w=pop(stack)
        if w<0:
            push(stackNeg,w)
        else:
            push(stackPos,w)
    print(stackNeg)
    print(stackPos)
main()
```



Write a program to add numbers from 1 to 9, then split the stack into two stacks.

```
def create():    return []
def push(stack,item):
    stack.append(item)
def pop(stack):
    if len(stack)==0:return ('stack is empty')
    else:
        return stack.pop()
def main():
    stack = create()
    for i in range(1,10,1):
        push(stack,i)
    stack1=create()
    stack2=create()
    for i in range(len(stack)//2):
        push(stack1, pop(stack))
    for i in range(len(stack)):
        push(stack2, pop(stack))
    print('stack1 = ',stack1)
    print('stack2 = ',stack2)
main()
```



Worksheet:

1- Write a program to concatenate two stacks.

2- Write a program to create a stack with the following numbers [-3, -1, 1, 3, 5] by using Loop then split it into two stacks, negative and positive stack.

Thank You