

The George Washington University



Advanced Software Paradigms (CSCI 6221.10)

Homework Assignment #4

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Submitted By:

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Submitted to:

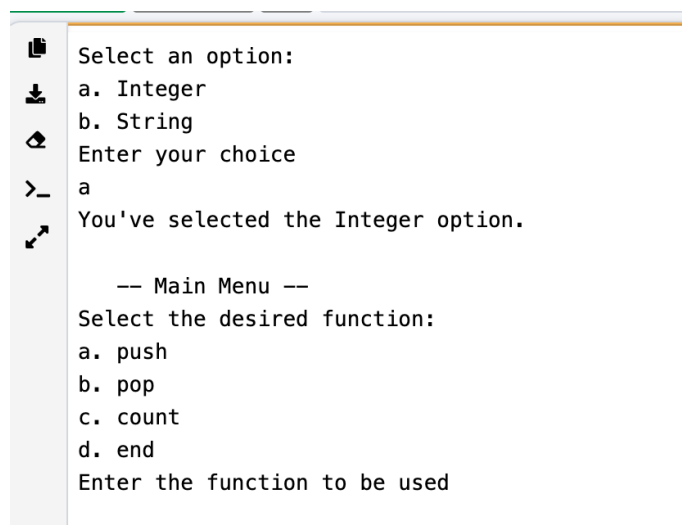
Professor Yih-Feng Hwang

Steps for execution:

1. The provided program is written in **Python**. To run it, use any online Python compiler, for example, <https://www.programiz.com/python-programming/online-compiler/>
2. Copy the code from the attached source code .txt file and paste it into the code area in the online compiler.
3. Click the “Run” button in the compiler.
4. Review the output/result displayed by the compiler, as illustrated in Figure 1.

Screenshots:

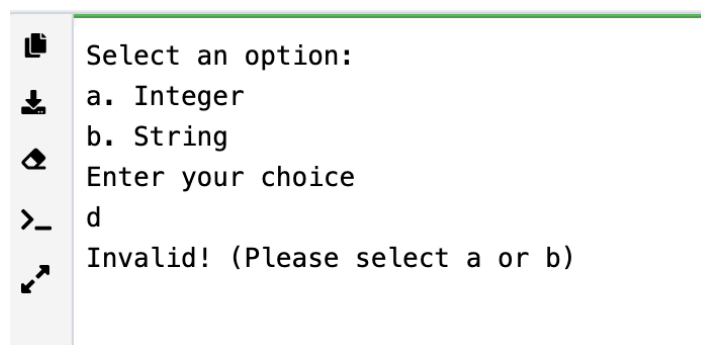
1. The program displays two data type options and the user selects one.



```
Select an option:
a. Integer
b. String
Enter your choice
a
You've selected the Integer option.

-- Main Menu --
Select the desired function:
a. push
b. pop
c. count
d. end
Enter the function to be used
```

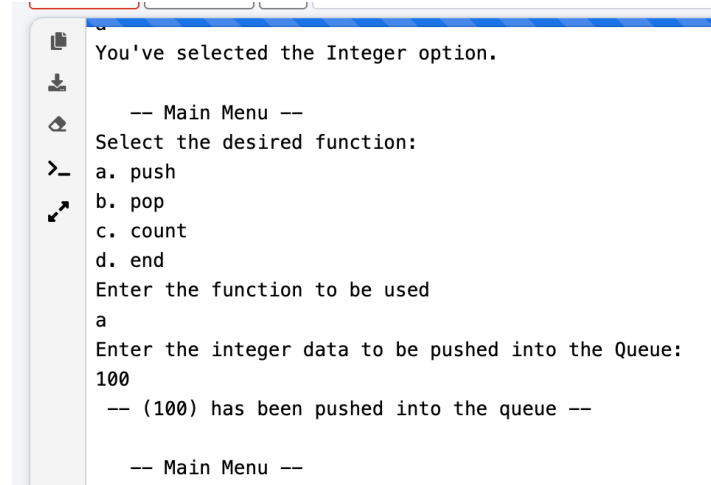
Figure 1: Result when datatype input is correct



```
Select an option:
a. Integer
b. String
Enter your choice
d
Invalid! (Please select a or b)
```

Figure 2: Result when datatype input is incorrect

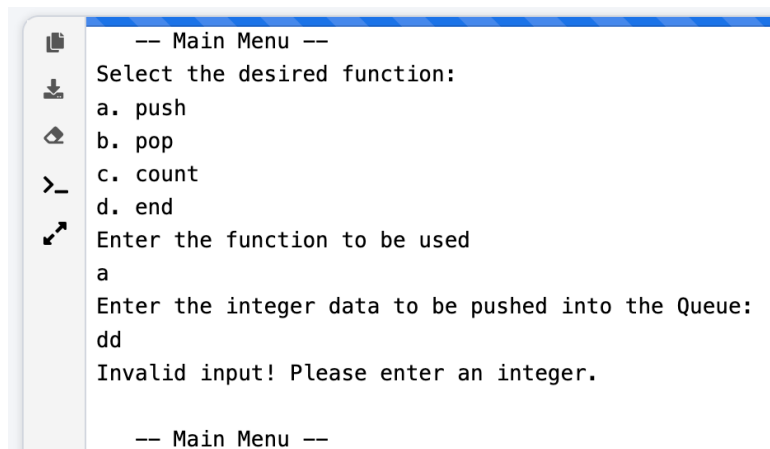
2. When the push function is used

A screenshot of a terminal window with a blue title bar. The terminal shows a menu-driven program. It starts with "You've selected the Integer option." followed by a "Main Menu" where the user selects "a. push". It then prompts for "integer data" and the user enters "100". The program outputs "(100) has been pushed into the queue".

```
You've selected the Integer option.  
  
-- Main Menu --  
Select the desired function:  
> a. push  
b. pop  
c. count  
d. end  
Enter the function to be used  
a  
Enter the integer data to be pushed into the Queue:  
100  
-- (100) has been pushed into the queue --  
  
-- Main Menu --
```

Figure 3: Result when the push function is used

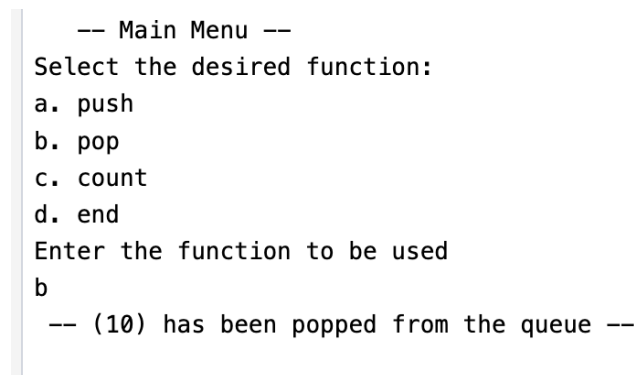
3. When the push function is used with incorrect datatype

A screenshot of a terminal window showing the same menu-driven program. The user selects "a. push" and enters "dd" for the integer data. The program responds with "Invalid input! Please enter an integer." and returns to the "Main Menu".

```
-- Main Menu --  
Select the desired function:  
> a. push  
b. pop  
c. count  
d. end  
Enter the function to be used  
a  
Enter the integer data to be pushed into the Queue:  
dd  
Invalid input! Please enter an integer.  
  
-- Main Menu --
```

Figure 4: Result when incorrect datatype is used in push function

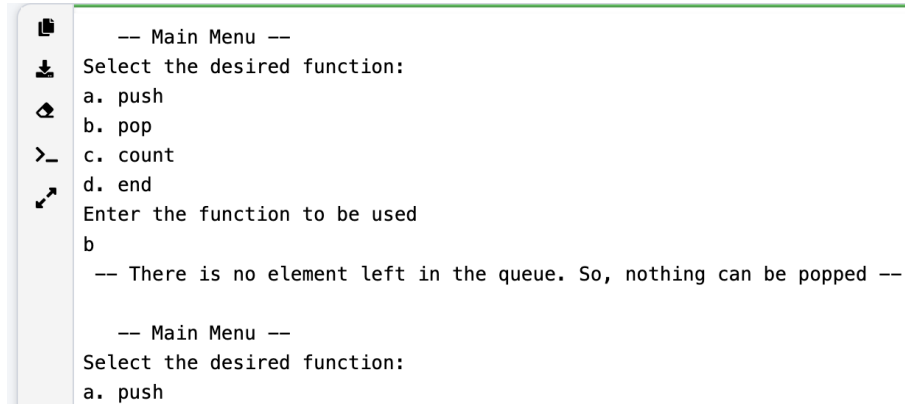
4. When the pop function is used

A screenshot of a terminal window showing the menu-driven program. The user selects "b. pop". The program outputs "(10) has been popped from the queue".

```
-- Main Menu --  
Select the desired function:  
a. push  
b. pop  
c. count  
d. end  
Enter the function to be used  
b  
-- (10) has been popped from the queue --
```

Figure 5: Result when the pop function is used

5. When the pop function is used when there is no data in the queue

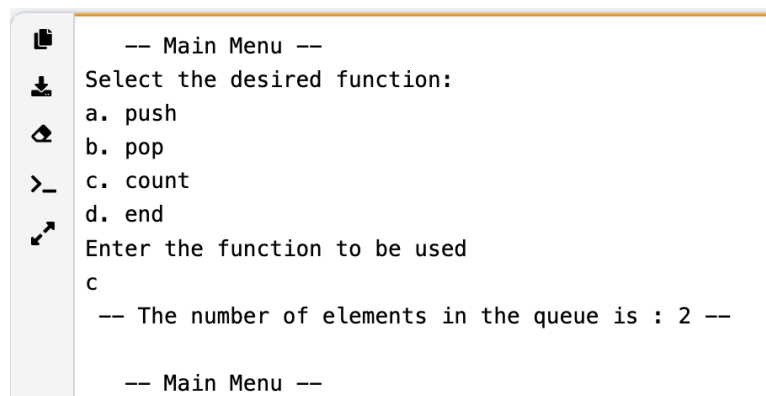


```
-- Main Menu --
Select the desired function:
a. push
b. pop
c. count
d. end
Enter the function to be used
b
-- There is no element left in the queue. So, nothing can be popped --

-- Main Menu --
Select the desired function:
a. push
```

Figure 6: Result when the pop function is used when no data in the queue

6. When the count function is used



```
-- Main Menu --
Select the desired function:
a. push
b. pop
c. count
d. end
Enter the function to be used
c
-- The number of elements in the queue is : 2 --

-- Main Menu --
```

Figure 7: Result when the count function is used

7. When the end function is used

```
-- Main Menu --
Select the desired function:
a. push
b. pop
c. count
d. end
Enter the function to be used
d
-- Program is ending... --

** Process exited - Return Code: 0 **
Press Enter to exit terminal
```

Figure 8: Result when the end function is used