

Project 6

Implement Deque in Python, Deque or doubly ended queues are linear data structures with which we can perform last in first out (LIFO) operations as well as first in first out (FIFO) operations.

Step 1: Create a class file and create the Deque class. Initialize the Deque class by passing the following parameters: self, user_input. The object's items will equal user_input and will be from the input of the user which will be declared in the main function of the main file.

Step 2: Create a method called display. This method will receive no input and returns the classes's items

Step 3: Create a method called addToBack. This method will take the item the user inputted(a string) and add it to the back of the line (the object's items). Lastly, it will return the entire line.

Step 4: Create a method called addToFront. This method will take the item the user inputted(a string) and add it to the front of the line (the object's items). Lastly, it will return the entire line.

Step 5: Create a main file. Import the following class on top of the file: Deque. Then, create a main function.

Step 6: Create a function named welcome. This function will be a helper function for func main. Therefore, It will be created outside of it. The welcome function will print a welcome message to the user. It will ask the user to input the names of the people and save this input in a variable called user_input. Lastly, it will return this input.

Step 7: Create a function named whatToDo. This function will be a helper function for func main. Therefore, It will be created outside of it. The whatodo function will declare a not_accepted variable that will have the letters not accepted as input.

It will then ask the user to type in f to add someone to the front of the line, b for the back, and d to display the line. It will save this input in a variable called func. If func equals "d", it will display the status of the line. If func equals a letter that is not accepted as input, it will call the whatotodo function again to let the user input another letter. Else if the func is f, b, or d, it will call the class's methods to properly add the user's input to the line.

Step 8: Inside the main function, call the welcome helper function and save the answer returned in a variable called user_input. Then, create a variable named line, that will instantiate the Deque class. In here, pass the variable user_input. Then, call the display method of the object to display the "line"

Step 9: Inside the main function, declare a variable named should_continue and have it equal to "y". Create a while loop that runs while should_continue equals "y". Inside the loop, call whatToDo and pass in the line variable that represents the object. Then, create a variable that

will be set to the input of the user when asked if they want to continue adding people to the line. This will be equal to either "y" or "n". If "n", it will break the loop and exit the program.

Step 10:: Call the main func to initialize the program. Make sure that the Deque class is imported from the file classes.