Stacks

Stacks

- Last in First Out (LIFO)
  - Processing Data in Reverse Order
  - Time
  - Backtracking
  - Call Stack
- Stack Operations
  - Push: Add new element to top of the stack
  - Pop: Remove and return top element of the stack
  - Peek: Observe but not remove the first element in a Stack
  - Print: Print all elements in a Stack

Stack

| Data |
| Data |
| Data |
| Data |
| Data |

Example

					X				
	X			X					
								X	
				X		X			
		X							
				X					
	X								
			X						

O					X				
	X			X					
								X	
				X		X			
		X							
				X					
	X								
			X						

Go South
Go East

O					X				
	X			X					
								X	
				X		X			
		X							
				X					
	X								
			X						G

Go West
Go East

Go West
Go East

#	#	#			X				
	X	#	#	X					
			#	O				X	
				X		X			
		X							
				X					
	X								
			X						G

Go Back
Go East

#	#	#			X				
	X	#	#	X					
			#	O				X	
				X		X			
		X							
				X					
	X								
			X						G

Go Back
Go South
Go West
Go East

#	#	#			X				
	X	#	#	X					
			O					X	
				X		X			
		X							
				X					
	X								
			X						G

You Win!

#	#	#			X				
	X	#	#	X					
			#					X	
			#	X		X			
			#	#	#				
		X			#	#			
						#	#		
				X			#		
	X						#		
			X				#	#	O

Go North
Go South
Go West
Go East
Give Up
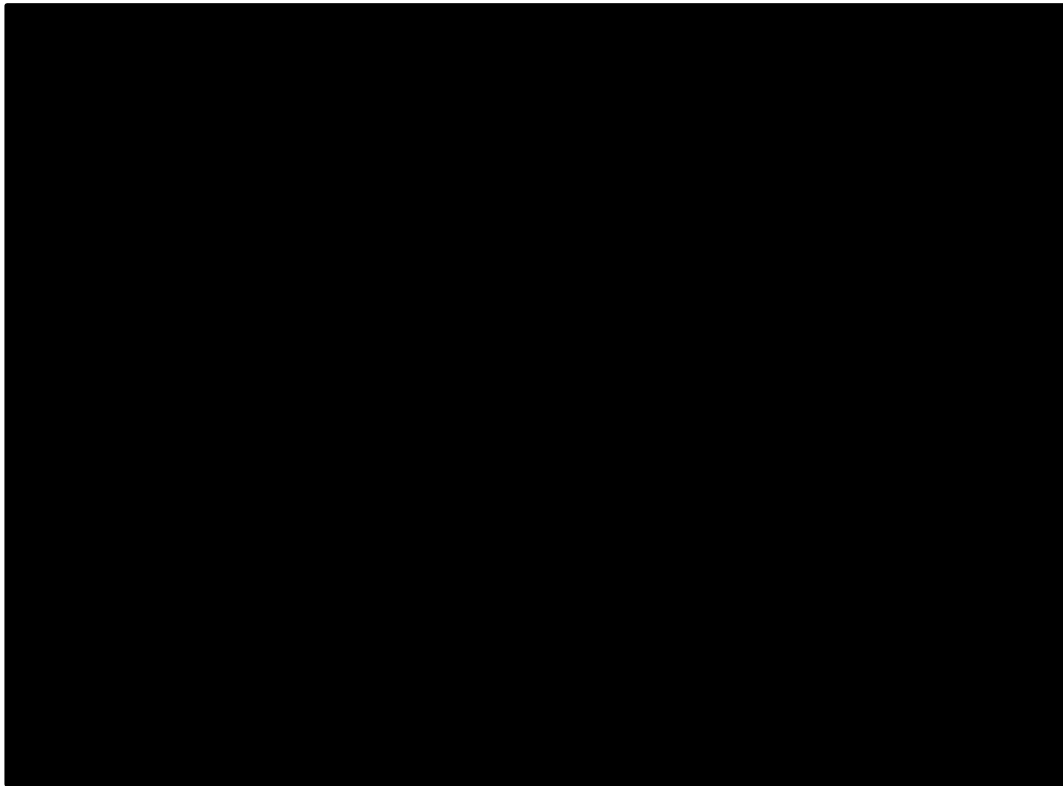
You Win!

#	#	#			X				
	X	#	#	X					
			#					X	
			#	X		X			
			#	#	#				
	X			#	#				
					#	#			
				X		#			
	X					#			
			X			#	#	O	

Example