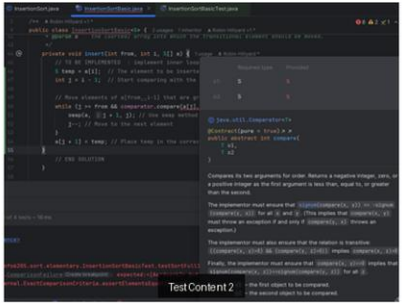
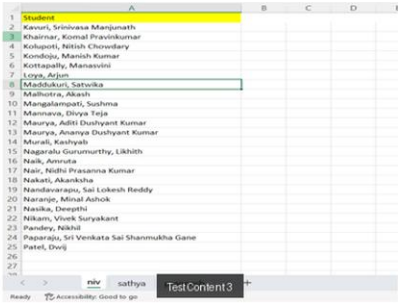
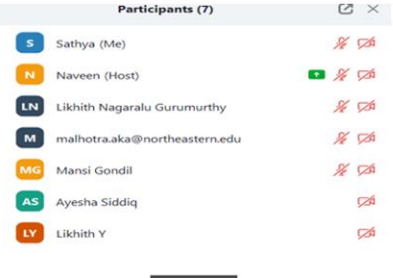
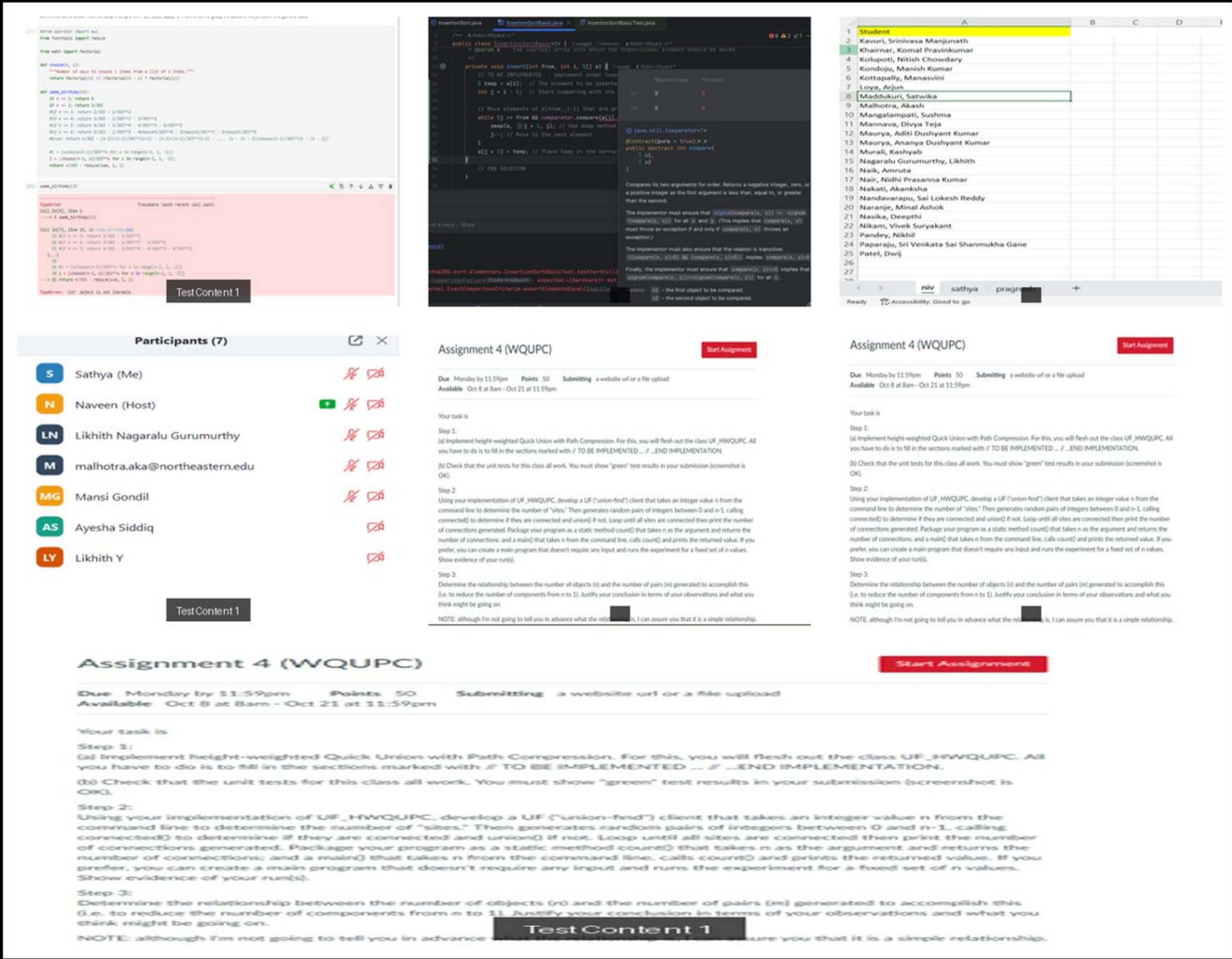






Assignment 4 (WQUPC)
Start Assignment
Due Monday by 11:59pm Points 50 Submitting a website url or a file upload
Available Oct 8 at 8am - Oct 21 at 11:59pm
Your task is
Step 1:
(a) Implement height-weighted Quick Union with Path Compression. For this, you will flesh out the class UF_HWQUPC. All you have to do is to fill in the sections marked with // TO BE IMPLEMENTED ... // ...END IMPLEMENTATION.
(b) Check that the unit tests for this class all work. You must show "green" test results in your submission (screenshot is OK).
Step 2:
Using your implementation of UF_HWQUPC, develop a UF ("union-find") client that takes an integer value n from the command line to determine the number of "sites." Then generates random pairs of integers between 0 and n-1, calling connected() to determine if they are connected and union() if not. Loop until all sites are connected then print the number of connections generated. Package your program as a static method count() that takes n as the argument and returns the number of connections; and a main() that takes n from the command line, calls count() and prints the returned value. If you prefer, you can create a main program that doesn't require any input and runs the experiment for a fixed set of n values. Show evidence of your run(s).
Step 3:
Determine the relationship between the number of objects (n) and the number of pairs (m) generated to accomplish this (i.e. to reduce the number of components from n to 1). Justify your conclusion in terms of your observations and what you think might be going on.
NOTE: although I'm not going to tell you in advance
you that it is a simple relationship.
Test Content 1


Test Content 1
Student
Kavuri, Srinivasa Manjunath
Khairnar, Komal Pravinkumar
Kolupoti, Nitish Chowdary
Kondoju, Manish Kumar
Kottapally, Manasvini
Loya, Arjun
Maddukuri, Satwika
Malhotra, Akash
Mangalampati, Sushma
Mannava, Divya Teja
Maurya, Aditi Dushyant Kumar
Maurya, Ananya Dushyant Kumar
Murali, Kashyab
Nagaralu Gurumurthy, Likhith
Naik, Amruta
Nair, Nidhi Prasanna Kumar
Nakati, Akanksha
Nandavarapu, Sai Lokesh Reddy
Naranje, Minal Ashok
Nasika, Deepthi
Nikam, Vivek Suryakant
Pandey, Nikhil
Paparaju, Sri Venkata Sai Shanmukha Gane
Patel, Dwij
niv
sathya
Ready
Accessibility: Good to go
Participants (7)
Sathya (Me)
Naveen (Host)
Likhith Nagaralu Gurumurthy
malhotra.aka@northeastern.edu
Mansi Gondil
Ayesha Siddiq
Likhith Y
Test Content 1
Assignment 4 (WQUPC)
Start Assignment
Due Monday by 11:59pm Points 50 Submitting a website url or a file upload
Available Oct 8 at 8am - Oct 21 at 11:59pm
Your task is
Step 1:
(a) Implement height-weighted Quick Union with Path Compression. For this, you will flesh out the class UF_HWQUPC. All you have to do is to fill in the sections marked with // TO BE IMPLEMENTED ... // ...END IMPLEMENTATION.
(b) Check that the unit tests for this class all work. You must show "green" test results in your submission (screenshot is OK).
Step 2:
Using your implementation of UF_HWQUPC, develop a UF ("union-find") client that takes an integer value n from the command line to determine the number of "sites." Then generates random pairs of integers between 0 and n-1, calling connected() to determine if they are connected and union() if not. Loop until all sites are connected then print the number of connections generated. Package your program as a static method count() that takes n as the argument and returns the number of connections; and a main() that takes n from the command line, calls count() and prints the returned value. If you prefer, you can create a main program that doesn't require any input and runs the experiment for a fixed set of n values. Show evidence of your run(s).
Step 3:
Determine the relationship between the number of objects (n) and the number of pairs (m) generated to accomplish this (i.e. to reduce the number of components from n to 1). Justify your conclusion in terms of your observations and what you think might be going on.
NOTE: although I'm not going to tell you in advance what the rel[redacted]s, I can assure you that it is a simple relationship.
Test Content 1