SocialNetwork

addPerson	Goal	Notes	Condition
CC1	Code Coverage	Add unique person id	Unique id, person not already in system
CC2	Code Coverage	Handle duplicate id	Person with this id already exists
B1	Branch Coverage	Add person to people list	Valid id
Tests	Test new person is added	Test person already in system will not be readded	

addConnection	Goal	Notes	Condition
CC1	Code Coverage	Add valid connection	Both people exist
CC2	Code Coverage	Attempt to add duplicate connection	Connection already exists
B1	Branch Coverage	Mutual connection	Both people have the connection
b1	Boundary	At least one of the people does not exist	Invalid IDs presented
Tests	Test valid addConnection call, should add connection	Test where 1 or both people DNE, should not add connection	Test self call, should not add self connection

removeConnection	Goal	Notes	Condition
CC1	Code Coverage	Remove connection	Both people exist and are connected
CC2	Code Coverage	Remove non-connection	People are not connected
B1	Branch Coverage	Ensure both	Both people removed

		disconnected	from other's connection
Tests	Test valid removeCondition call, should remove connection	Test where connection between people DNE, should not remove anything	Test 1 or both people DNE, should not remove anything

findInfluencers	Goal	Notes	Condition
CC1	Code Coverage	Get k most influential people in network	Network has k people
CC2	Code Coverage	Case k larger than network	Network has less than k people
B1	Branch Coverage	Check sorting is correct	Influence score calculated correctly
b1	Boundary	k = 0	Return no one
b2	Boundary	k = num people in network	Return everyone in network
Tests	Test finding k most influential people when num people > k, should return k most influential people	Test finding k most influential people when num people < k , return nothing	Test finding k most influential people when num people = k , return everyone
Tests cont.	Test finding k most influential people when num people = 0 , return nothing		

shortestPath	Goal	Notes	Condition
CC1	Code Coverage	Find shortest path	Both exist in system
CC2	Code Coverage	Path DNE	People not connected

			or connected through anyone
B1	Branch Coverage	Explore list correctly	BFS → neighbor
b1	Boundary	One/both people do not exist	Invalid ids
b2	Boundary	Start/End are the same	Path is just the Start/End person
Tests	Test finding shortest path with people connected indirectly, should return shortest path	Test finding shortest path when people connected directly, should return shortest path	Test when people not directly or indirectly connected, should return null
Tests cont.	Test finding shortest path when start and end are the same person, should return just the start/end person		

Stress Test:

Generate a network of 500000 people and randomly create 2500000 connections. Assert that each person has at least one connection and that influencers are correctly ranked within a reasonable time.

Person

addConnection	Goal	Notes	Condition
CC1	Code Coverage	Add a valid connection	Both people exist and are not already connected
CC2	Code Coverage	Attempt to add duplicate connection	Person already connected to other person
B1	Branch Coverage	Mutual connection	Both people connected
b1	Boundary	Attempt to connect to self	Person should not connect to themself
Tests	Test valid addConnection call, should add connection	Test connection already exists, should not add connection	Test self call, should not do anything

removeConnection	Goal	Notes	Condition
CC1	Code Coverage	Remove connection	Both people exist and are connected
CC2	Code Coverage	Remove non-connection	People are not connected
B1	Branch Coverage	Ensure both disconnected	Both people removed from other's connection
Tests	Test valid removeConnection call, should remove connection	Test connection DNE, should not do anything	Test self call, should not do anything

getInfluence	Goal	Notes	Condition
CC1	Code Coverage	Calculate influence	Influence based on connections and connections of

			connections
CC2	Code Coverage	Handle if person has 0 connections	People has no connections
B1	Branch Coverage	Influence based on connections of connections	Influence based on connections and connections of connections
b1	Boundary	Only 1 connection	One connection
Tests	Test valid getInfluence call, should return total influence score	Test person has no connections, should return 0	

Stress Test: Generate 1000000 people, and create connections between 500000 pairs. Assert that each person has at least one connection.

InputValidator

validatePersonInput	Goal	Notes	Condition
CC1	Code Coverage	Valid Person Input	Person input is as expected
CC2	Code Coverage	Invalid Person Name input	Name empty, in wrong format
CC3	Code Coverage	Invalid Person ID input	ID wrong format
Tests	Test valid input	Test invalid name input	Test invalid ID input

validateConnectionInput	Goal	Notes	Condition
CC1	Code Coverage	Valid Connection Input	Connection input is as expected
CC2	Code Coverage	Invalid Connection input	Connection input is in wrong format/ not as expected
Tests	Test valid input	Test invalid input	