

Step 2A:

Cypher Query:

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```
CREATE (ee:Person { name: "Emil", from: "Sweden", klout: 99 })
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```
MATCH (ee:Person) WHERE ee.name = "Emil" RETURN ee;
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```
MATCH (ee:Person) WHERE ee.name = "Emil"
CREATE (js:Person { name: "Johan", from: "Sweden", learn: "surfing" }),
(ir:Person { name: "Ian", from: "England", title: "author" }),
(rvb:Person { name: "Rik", from: "Belgium", pet: "Orval" }),
(ally:Person { name: "Allison", from: "California", hobby: "surfing" }),
(ee)-[:KNOWS {since: 2001}]->(js),(ee)-[:KNOWS {rating: 5}]->(ir),
(js)-[:KNOWS]->(ir),(js)-[:KNOWS]->(rvb),
(ir)-[:KNOWS]->(js),(ir)-[:KNOWS]->(ally),
(rvb)-[:KNOWS]->(ally)
```

```
MATCH (ee:Person)-[:KNOWS]-(friends)
WHERE ee.name = "Emil" RETURN ee, friends
```

```
MATCH (js:Person)-[:KNOWS]-(s)-[:KNOWS]-(surfer)
WHERE js.name = "Johan" AND surfer.hobby = "surfing"
RETURN DISTINCT surfer
```

```
PROFILE MATCH (js:Person)-[:KNOWS]-(s)-[:KNOWS]-(surfer)
WHERE js.name = "Johan" AND surfer.hobby = "surfing"
RETURN DISTINCT surfer
```

Movie Graph:

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```
CREATE (TheMatrix:Movie {title:'The Matrix', released:1999, tagline:'Welcome to the Real World'})
CREATE (Keanu:Person {name:'Keanu Reeves', born:1964})
CREATE (Carrie:Person {name:'Carrie-Anne Moss', born:1967})
CREATE (Laurence:Person {name:'Laurence Fishburne', born:1961})
CREATE (Hugo:Person {name:'Hugo Weaving', born:1960})
CREATE (LillyW:Person {name:'Lilly Wachowski', born:1967})
CREATE (LanaW:Person {name:'Lana Wachowski', born:1965})
CREATE (JoelS:Person {name:'Joel Silver', born:1952})
CREATE
(Keanu)-[:ACTED_IN {roles:['Neo']}]->(TheMatrix),
(Carrie)-[:ACTED_IN {roles:['Trinity']}]->(TheMatrix),
(Laurence)-[:ACTED_IN {roles:['Morpheus']}]->(TheMatrix),
(Hugo)-[:ACTED_IN {roles:['Agent Smith']}]->(TheMatrix),
(LillyW)-[:DIRECTED]->(TheMatrix),
(LanaW)-[:DIRECTED]->(TheMatrix),
(JoelS)-[:PRODUCED]->(TheMatrix)
```

```
CREATE (Emil:Person {name:"Emil Eifrem", born:1978})
CREATE (Emil)-[:ACTED_IN {roles:["Emil"]}]->(TheMatrix)
```

```
CREATE (TheMatrixReloaded:Movie {title:'The Matrix Reloaded', released:2003, tagline:'Free your mind'})
CREATE
(Keanu)-[:ACTED_IN {roles:['Neo']}]->(TheMatrixReloaded),
(Carrie)-[:ACTED_IN {roles:['Trinity']}]->(TheMatrixReloaded),
(Laurence)-[:ACTED_IN {roles:['Morpheus']}]->(TheMatrixReloaded),
(Hugo)-[:ACTED_IN {roles:['Agent Smith']}]->(TheMatrixReloaded),
(LillyW)-[:DIRECTED]->(TheMatrixReloaded),
(LanaW)-[:DIRECTED]->(TheMatrixReloaded),
(JoelS)-[:PRODUCED]->(TheMatrixReloaded)
```

```
CREATE (TheMatrixRevolutions:Movie {title:'The Matrix Revolutions', released:2003, tagline:'Everything that has a beginning has an end'})
CREATE
(Keanu)-[:ACTED_IN {roles:['Neo']}]->(TheMatrixRevolutions),
(Carrie)-[:ACTED_IN {roles:['Trinity']}]->(TheMatrixRevolutions),
(Laurence)-[:ACTED_IN {roles:['Morpheus']}]->(TheMatrixRevolutions),
(Hugo)-[:ACTED_IN {roles:['Agent Smith']}]->(TheMatrixRevolutions),
(LillyW)-[:DIRECTED]->(TheMatrixRevolutions),
(LanaW)-[:DIRECTED]->(TheMatrixRevolutions),
(JoelS)-[:PRODUCED]->(TheMatrixRevolutions)
```

```
CREATE (TheDevilsAdvocate:Movie {title:"The Devil's Advocate", released:1997, tagline:'Evil has its winning ways'})
CREATE (Charlize:Person {name:'Charlize Theron', born:1975})
CREATE (Al:Person {name:'Al Pacino', born:1940})
CREATE (Taylor:Person {name:'Taylor Hackford', born:1944})
CREATE
(Keanu)-[:ACTED_IN {roles:['Kevin Lomax']}]->(TheDevilsAdvocate),
(Charlize)-[:ACTED_IN {roles:['Mary Ann Lomax']}]->(TheDevilsAdvocate),
(Al)-[:ACTED_IN {roles:['John Milton']}]->(TheDevilsAdvocate),
(Taylor)-[:DIRECTED]->(TheDevilsAdvocate)
```

```
CREATE (AFewGoodMen:Movie {title:"A Few Good Men", released:1992, tagline:"In the heart of the nation's capital, in a courthouse of the U.S. government, one man will stop at nothing to keep his honor, and one will stop at nothing to find the truth."})
CREATE (TomC:Person {name:'Tom Cruise', born:1962})
CREATE (JackN:Person {name:'Jack Nicholson', born:1937})
CREATE (DemiM:Person {name:'Demi Moore', born:1962})
CREATE (KevinB:Person {name:'Kevin Bacon', born:1958})
CREATE (KieferS:Person {name:'Kiefer Sutherland', born:1966})
CREATE (NoahW:Person {name:'Noah Wyle', born:1971})
CREATE (CubaG:Person {name:'Cuba Gooding Jr.', born:1968})
```

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```
CREATE (KevinP:Person {name:'Kevin Pollak', born:1957})
CREATE (JTW:Person {name:'J.T. Walsh', born:1943})
CREATE (JamesM:Person {name:'James Marshall', born:1967})
CREATE (ChristopherG:Person {name:'Christopher Guest', born:1948})
CREATE (RobR:Person {name:'Rob Reiner', born:1947})
CREATE (AaronS:Person {name:'Aaron Sorkin', born:1961})
CREATE
(TomC)-[:ACTED_IN {roles:['Lt. Daniel Kaffee']}]>-(AFewGoodMen),
(JackN)-[:ACTED_IN {roles:['Col. Nathan R. Jessup']}]>-(AFewGoodMen),
(DemiM)-[:ACTED_IN {roles:['Lt. Cdr. JoAnne Galloway']}]>-(AFewGoodMen),
(KevinB)-[:ACTED_IN {roles:['Capt. Jack Ross']}]>-(AFewGoodMen),
(KieferS)-[:ACTED_IN {roles:['Lt. Jonathan Kendrick']}]>-(AFewGoodMen),
(NoahW)-[:ACTED_IN {roles:['Cpl. Jeffrey Barnes']}]>-(AFewGoodMen),
(CubaG)-[:ACTED_IN {roles:['Cpl. Carl Hammaker']}]>-(AFewGoodMen),
(KevinP)-[:ACTED_IN {roles:['Lt. Sam Weinberg']}]>-(AFewGoodMen),
(JTW)-[:ACTED_IN {roles:['Lt. Col. Matthew Andrew Markinson']}]>-(AFewGoodMen),
(JamesM)-[:ACTED_IN {roles:['Pfc. Loudon Downey']}]>-(AFewGoodMen),
(ChristopherG)-[:ACTED_IN {roles:['Dr. Stone']}]>-(AFewGoodMen),
(AaronS)-[:ACTED_IN {roles:['Man in Bar']}]>-(AFewGoodMen),
(RobR)-[:DIRECTED]>-(AFewGoodMen),
(AaronS)-[:WROTE]>-(AFewGoodMen)

CREATE (TopGun:Movie {title:'Top Gun', released:1986, tagline:'I feel the need, the need for speed.'})
CREATE (KellyM:Person {name:'Kelly McGillis', born:1957})
CREATE (ValK:Person {name:'Val Kilmer', born:1959})
CREATE (AnthonyE:Person {name:'Anthony Edwards', born:1962})
CREATE (TomS:Person {name:'Tom Skerritt', born:1933})
CREATE (MegR:Person {name:'Meg Ryan', born:1961})
CREATE (TonyS:Person {name:'Tony Scott', born:1944})
CREATE (JimC:Person {name:'Jim Cash', born:1941})
CREATE
(TomC)-[:ACTED_IN {roles:['Maverick']}]>-(TopGun),
(KellyM)-[:ACTED_IN {roles:['Charlie']}]>-(TopGun),
(ValK)-[:ACTED_IN {roles:['Iceman']}]>-(TopGun),
(AnthonyE)-[:ACTED_IN {roles:['Goose']}]>-(TopGun),
(TomS)-[:ACTED_IN {roles:['Viper']}]>-(TopGun),
(MegR)-[:ACTED_IN {roles:['Carole']}]>-(TopGun),
(TonyS)-[:DIRECTED]>-(TopGun),
(JimC)-[:WROTE]>-(TopGun)

CREATE (JerryMaguire:Movie {title:'Jerry Maguire', released:2000, tagline:'The rest of his life begins now.'})
CREATE (ReneeZ:Person {name:'Renee Zellweger', born:1969})
CREATE (KellyP:Person {name:'Kelly Preston', born:1962})
CREATE (JerryO:Person {name:'Jerry O'Connell', born:1974})
CREATE (JayM:Person {name:'Jay Mohr', born:1970})
CREATE (BonnieH:Person {name:'Bonnie Hunt', born:1961})
CREATE (ReginaK:Person {name:'Regina King', born:1971})
CREATE (JonathanL:Person {name:'Jonathan Lipnicki', born:1996})
CREATE (CameronC:Person {name:'Cameron Crowe', born:1957})
CREATE
(TomC)-[:ACTED_IN {roles:['Jerry Maguire']}]>-(JerryMaguire),
(CubaG)-[:ACTED_IN {roles:['Rod Tidwell']}]>-(JerryMaguire),
(ReneeZ)-[:ACTED_IN {roles:['Dorothy Boyd']}]>-(JerryMaguire),
(KellyP)-[:ACTED_IN {roles:['Avery Bishop']}]>-(JerryMaguire),
(JerryO)-[:ACTED_IN {roles:['Frank Cushman']}]>-(JerryMaguire),
(JayM)-[:ACTED_IN {roles:['Bob Sugar']}]>-(JerryMaguire),
(BonnieH)-[:ACTED_IN {roles:['Laurel Boyd']}]>-(JerryMaguire),
(ReginaK)-[:ACTED_IN {roles:['Marcee Tidwell']}]>-(JerryMaguire),
(JonathanL)-[:ACTED_IN {roles:['Ray Boyd']}]>-(JerryMaguire),
(CameronC)-[:DIRECTED]>-(JerryMaguire),
(CameronC)-[:PRODUCED]>-(JerryMaguire),
(CameronC)-[:WROTE]>-(JerryMaguire)

CREATE (StandByMe:Movie {title:'Stand By Me', released:1986, tagline:'For some, it's the last real taste of innocence, and the first real taste of life. But for everyone, it's the time that memories are made of.'})
CREATE (RiverP:Person {name:'River Phoenix', born:1970})
CREATE (CoreyF:Person {name:'Corey Feldman', born:1971})
CREATE (WilW:Person {name:'Wil Wheaton', born:1972})
CREATE (JohnC:Person {name:'John Cusack', born:1966})
CREATE (MarshallB:Person {name:'Marshall Bell', born:1942})
CREATE
(WilW)-[:ACTED_IN {roles:['Gordie Lachance']}]>-(StandByMe),
(RiverP)-[:ACTED_IN {roles:['Chris Chambers']}]>-(StandByMe),
(JerryO)-[:ACTED_IN {roles:['Vern Tessio']}]>-(StandByMe),
(CoreyF)-[:ACTED_IN {roles:['Teddy Duchamp']}]>-(StandByMe),
(JohnC)-[:ACTED_IN {roles:['Denny Lachance']}]>-(StandByMe),
(KieferS)-[:ACTED_IN {roles:['Ace Merrill']}]>-(StandByMe),
(MarshallB)-[:ACTED_IN {roles:['Mr. Lachance']}]>-(StandByMe),
(RobR)-[:DIRECTED]>-(StandByMe)

CREATE (AsGoodAsItGets:Movie {title:'As Good as It Gets', released:1997, tagline:'A comedy from the heart that goes for the throat.'})
CREATE (HelenH:Person {name:'Helen Hunt', born:1963})
CREATE (GregK:Person {name:'Greg Kinnear', born:1963})
CREATE (JamesB:Person {name:'James L. Brooks', born:1940})
CREATE
(JackN)-[:ACTED_IN {roles:['Melvin Udall']}]>-(AsGoodAsItGets),
(HelenH)-[:ACTED_IN {roles:['Carol Connelly']}]>-(AsGoodAsItGets),
(GregK)-[:ACTED_IN {roles:['Simon Bishop']}]>-(AsGoodAsItGets),
(CubaG)-[:ACTED_IN {roles:['Frank Sachs']}]>-(AsGoodAsItGets),
(JamesB)-[:DIRECTED]>-(AsGoodAsItGets)

CREATE (WhatDreamsMayCome:Movie {title:'What Dreams May Come', released:1998, tagline:'After life there is more. The end is just the beginning.'})
CREATE (AnnabellaS:Person {name:'Annabella Sciorra', born:1960})
CREATE (MaxS:Person {name:'Max von Sydow', born:1929})
```

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CREATE (WernerH:Person {name:'Werner Herzog', born:1942})
CREATE (Robin:Person {name:'Robin Williams', born:1951})
CREATE (VincentW:Person {name:'Vincent Ward', born:1956})
CREATE
(Robin)-[:ACTED_IN {roles:['Chris Nielsen']}]>{(WhatDreamsMayCome),
(CubaG)-[:ACTED_IN {roles:['Albert Lewis']}]>{(WhatDreamsMayCome),
(AnnabellaS)-[:ACTED_IN {roles:['Annie Collins-Nielsen']}]>{(WhatDreamsMayCome),
(MaxS)-[:ACTED_IN {roles:['The Tracker']}]>{(WhatDreamsMayCome),
(WernerH)-[:ACTED_IN {roles:['The Face']}]>{(WhatDreamsMayCome),
(VincentW)-[:DIRECTED]>{(WhatDreamsMayCome)}

CREATE (SnowFallingonCedars:Movie {title:'Snow Falling on Cedars', released:1999, tagline:'First loves last. Forever.'})
CREATE (EthanH:Person {name:'Ethan Hawke', born:1970})
CREATE (RickY:Person {name:'Rick Yune', born:1971})
CREATE (JamesC:Person {name:'James Cromwell', born:1940})
CREATE (ScottH:Person {name:'Scott Hicks', born:1953})
CREATE
(EthanH)-[:ACTED_IN {roles:['Ishmael Chambers']}]>{(SnowFallingonCedars),
(RickY)-[:ACTED_IN {roles:['Kazuo Miyamoto']}]>{(SnowFallingonCedars),
(MaxS)-[:ACTED_IN {roles:['Nels Gudmundsson']}]>{(SnowFallingonCedars),
(JamesC)-[:ACTED_IN {roles:['Judge Fielding']}]>{(SnowFallingonCedars),
(ScottH)-[:DIRECTED]>{(SnowFallingonCedars)}

CREATE (YouveGotMail:Movie {title:"You've Got Mail", released:1998, tagline:'At odds in life... in love on-line.'})
CREATE (ParkerP:Person {name:'Parker Posey', born:1968})
CREATE (DaveC:Person {name:'Dave Chappelle', born:1973})
CREATE (SteveZ:Person {name:'Steve Zahn', born:1967})
CREATE (TomH:Person {name:'Tom Hanks', born:1956})
CREATE (NoraE:Person {name:'Nora Ephron', born:1941})
CREATE
(TomH)-[:ACTED_IN {roles:['Joe Fox']}]>{(YouveGotMail),
(MegR)-[:ACTED_IN {roles:['Kathleen Kelly']}]>{(YouveGotMail),
(GregK)-[:ACTED_IN {roles:['Frank Navasky']}]>{(YouveGotMail),
(ParkerP)-[:ACTED_IN {roles:['Patricia Eden']}]>{(YouveGotMail),
(DaveC)-[:ACTED_IN {roles:['Kevin Jackson']}]>{(YouveGotMail),
(SteveZ)-[:ACTED_IN {roles:['George Pappas']}]>{(YouveGotMail),
(NoraE)-[:DIRECTED]>{(YouveGotMail)}

CREATE (SleeplessInSeattle:Movie {title:'Sleepless in Seattle', released:1993, tagline:'What if someone you never met, someone you never saw, someone you never knew was the only someone for you?'})
CREATE (RitaW:Person {name:'Rita Wilson', born:1956})
CREATE (BillPull:Person {name:'Bill Pullman', born:1953})
CREATE (VictorG:Person {name:'Victor Garber', born:1949})
CREATE (RosieO:Person {name:"Rosie O'Donnell", born:1962})
CREATE
(TomH)-[:ACTED_IN {roles:['Sam Baldwin']}]>{(SleeplessInSeattle),
(MegR)-[:ACTED_IN {roles:['Annie Reed']}]>{(SleeplessInSeattle),
(RitaW)-[:ACTED_IN {roles:['Suzy']}]>{(SleeplessInSeattle),
(BillPull)-[:ACTED_IN {roles:['Walter']}]>{(SleeplessInSeattle),
(VictorG)-[:ACTED_IN {roles:['Greg']}]>{(SleeplessInSeattle),
(RosieO)-[:ACTED_IN {roles:['Becky']}]>{(SleeplessInSeattle),
(NoraE)-[:DIRECTED]>{(SleeplessInSeattle)}

CREATE (JoeVersustheVolcano:Movie {title:'Joe Versus the Volcano', released:1990, tagline:'A story of love, lava and burning desire.'})
CREATE (JohnS:Person {name:'John Patrick Stanley', born:1950})
CREATE (Nathan:Person {name:'Nathan Lane', born:1956})
CREATE
(TomH)-[:ACTED_IN {roles:['Joe Banks']}]>{(JoeVersustheVolcano),
(MegR)-[:ACTED_IN {roles:['DeDe', 'Angelica Graynamore', 'Patricia Graynamore']}]>{(JoeVersustheVolcano),
(Nathan)-[:ACTED_IN {roles:['Baw']}]>{(JoeVersustheVolcano),
(JohnS)-[:DIRECTED]>{(JoeVersustheVolcano)}

CREATE (WhenHarryMetSally:Movie {title:'When Harry Met Sally', released:1998, tagline:'Can two friends sleep together and still love each other in the morning?'})
CREATE (BillyC:Person {name:'Billy Crystal', born:1948})
CREATE (CarrieF:Person {name:'Carrie Fisher', born:1956})
CREATE (BrunoK:Person {name:'Bruno Kirby', born:1949})
CREATE
(BillyC)-[:ACTED_IN {roles:['Harry Burns']}]>{(WhenHarryMetSally),
(MegR)-[:ACTED_IN {roles:['Sally Albright']}]>{(WhenHarryMetSally),
(CarrieF)-[:ACTED_IN {roles:['Marie']}]>{(WhenHarryMetSally),
(BrunoK)-[:ACTED_IN {roles:['Jess']}]>{(WhenHarryMetSally),
(RobR)-[:DIRECTED]>{(WhenHarryMetSally),
(RobR)-[:PRODUCED]>{(WhenHarryMetSally),
(NoraE)-[:PRODUCED]>{(WhenHarryMetSally),
(NoraE)-[:WROTE]>{(WhenHarryMetSally)}

CREATE (ThatThingYouDo:Movie {title:'That Thing You Do', released:1996, tagline:'In every life there comes a time when that thing you dream becomes that thing you do'})
CREATE (LivT:Person {name:'Liv Tyler', born:1977})
CREATE
(TomH)-[:ACTED_IN {roles:['Mr. White']}]>{(ThatThingYouDo),
(LivT)-[:ACTED_IN {roles:['Faye Dolan']}]>{(ThatThingYouDo),
(Charlize)-[:ACTED_IN {roles:['Tina']}]>{(ThatThingYouDo),
(TomH)-[:DIRECTED]>{(ThatThingYouDo)}

CREATE (TheReplacements:Movie {title:'The Replacements', released:2000, tagline:'Pain heals, Chicks dig scars... Glory lasts forever'})
CREATE (Brooke:Person {name:'Brooke Langton', born:1970})
CREATE (Gene:Person {name:'Gene Hackman', born:1930})
CREATE (Orlando:Person {name:'Orlando Jones', born:1968})
CREATE (Howard:Person {name:'Howard Deutch', born:1950})
CREATE
(Keanu)-[:ACTED_IN {roles:['Shane Falco']}]>{(TheReplacements),
(Brooke)-[:ACTED_IN {roles:['Annabelle Farrell']}]>{(TheReplacements),
(Gene)-[:ACTED_IN {roles:['Jimmy McGinty']}]>{(TheReplacements),
(Orlando)-[:ACTED_IN {roles:['Clifford Franklin']}]>{(TheReplacements),
(Howard)-[:DIRECTED]>{(TheReplacements)}
```

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CREATE (RescueDawn:Movie {title:'RescueDawn', released:2006, tagline:'Based on the extraordinary true story of one man's fight for freedom'})
CREATE (ChristianB:Person {name:'Christian Bale', born:1974})
CREATE (ZachG:Person {name:'Zach Grenier', born:1954})
CREATE
(MarshallB)-[:ACTED_IN {roles:['Admiral']}]>-(RescueDawn),
(ChristianB)-[:ACTED_IN {roles:['Dieter Dengler']}]>-(RescueDawn),
(ZachG)-[:ACTED_IN {roles:['Squad Leader']}]>-(RescueDawn),
(SteveZ)-[:ACTED_IN {roles:['Duane']}]>-(RescueDawn),
(WernerH)-[:DIRECTED]>-(RescueDawn)

CREATE (TheBirdcage:Movie {title:'The Birdcage', released:1996, tagline:'Come as you are'})
CREATE (MikeN:Person {name:'Mike Nichols', born:1931})
CREATE
(Robin)-[:ACTED_IN {roles:['Armand Goldman']}]>-(TheBirdcage),
(Nathan)-[:ACTED_IN {roles:['Albert Goldman']}]>-(TheBirdcage),
(Gene)-[:ACTED_IN {roles:['Sen. Kevin Keeley']}]>-(TheBirdcage),
(MikeN)-[:DIRECTED]>-(TheBirdcage)

CREATE (Unforgiven:Movie {title:'Unforgiven', released:1992, tagline:'It's a hell of a thing, killing a man'})
CREATE (RichardH:Person {name:'Richard Harris', born:1930})
CREATE (ClintE:Person {name:'Clint Eastwood', born:1930})
CREATE
(RichardH)-[:ACTED_IN {roles:['English Bob']}]>-(Unforgiven),
(ClintE)-[:ACTED_IN {roles:['Bill Munny']}]>-(Unforgiven),
(Gene)-[:ACTED_IN {roles:['Little Bill Daggett']}]>-(Unforgiven),
(ClintE)-[:DIRECTED]>-(Unforgiven)

CREATE (JohnnyMnemonic:Movie {title:'Johnny Mnemonic', released:1995, tagline:'The hottest data on earth. In the coolest head in town'})
CREATE (Takeshi:Person {name:'Takeshi Kitano', born:1947})
CREATE (Dina:Person {name:'Dina Meyer', born:1968})
CREATE (IceT:Person {name:'Ice-T', born:1958})
CREATE (RobertL:Person {name:'Robert Longo', born:1953})
CREATE
(Keanu)-[:ACTED_IN {roles:['Johnny Mnemonic']}]>-(JohnnyMnemonic),
(Takeshi)-[:ACTED_IN {roles:['Takahashi']}]>-(JohnnyMnemonic),
(Dina)-[:ACTED_IN {roles:['Jane']}]>-(JohnnyMnemonic),
(IceT)-[:ACTED_IN {roles:['J-Bone']}]>-(JohnnyMnemonic),
(RobertL)-[:DIRECTED]>-(JohnnyMnemonic)

CREATE (CloudAtlas:Movie {title:'Cloud Atlas', released:2012, tagline:'Everything is connected'})
CREATE (HalleB:Person {name:'Halle Berry', born:1966})
CREATE (JimB:Person {name:'Jim Broadbent', born:1949})
CREATE (TomT:Person {name:'Tom Tykwer', born:1965})
CREATE (DavidMitchell:Person {name:'David Mitchell', born:1969})
CREATE (StefanArndt:Person {name:'Stefan Arndt', born:1961})
CREATE
(TomH)-[:ACTED_IN {roles:['Zachry', 'Dr. Henry Goose', 'Isaac Sachs', 'Dermot Hoggins']}]>-(CloudAtlas),
(Hugo)-[:ACTED_IN {roles:['Bill Smoke', 'Haskell Moore', 'Tadeusz Kesselring', 'Nurse Noakes', 'Boardman Mephi', 'Old Georgie']}]>-(CloudAtlas),
(HalleB)-[:ACTED_IN {roles:['Luisa Rey', 'Jocasta Ayrs', 'Ovid', 'Meronym']}]>-(CloudAtlas),
(JimB)-[:ACTED_IN {roles:['Vyvyan Ayrs', 'Captain Molyneux', 'Timothy Cavendish']}]>-(CloudAtlas),
(TomT)-[:DIRECTED]>-(CloudAtlas),
(LillyW)-[:DIRECTED]>-(CloudAtlas),
(LanaW)-[:DIRECTED]>-(CloudAtlas),
(DavidMitchell)-[:WROTE]>-(CloudAtlas),
(StefanArndt)-[:PRODUCED]>-(CloudAtlas)

CREATE (TheDaVinciCode:Movie {title:'The Da Vinci Code', released:2006, tagline:'Break The Codes'})
CREATE (IanM:Person {name:'Ian McKellen', born:1939})
CREATE (AudreyT:Person {name:'Audrey Tautou', born:1976})
CREATE (PaulB:Person {name:'Paul Bettany', born:1971})
CREATE (RonH:Person {name:'Ron Howard', born:1954})
CREATE
(TomH)-[:ACTED_IN {roles:['Dr. Robert Langdon']}]>-(TheDaVinciCode),
(IanM)-[:ACTED_IN {roles:['Sir Leight Teabing']}]>-(TheDaVinciCode),
(AudreyT)-[:ACTED_IN {roles:['Sophie Neveu']}]>-(TheDaVinciCode),
(PaulB)-[:ACTED_IN {roles:['Silas']}]>-(TheDaVinciCode),
(RonH)-[:DIRECTED]>-(TheDaVinciCode)

CREATE (VforVendetta:Movie {title:'V for Vendetta', released:2006, tagline:'Freedom! Forever!'})
CREATE (NatalieP:Person {name:'Natalie Portman', born:1981})
CREATE (StephenR:Person {name:'Stephen Rea', born:1946})
CREATE (JohnH:Person {name:'John Hurt', born:1940})
CREATE (BenM:Person {name:'Ben Miles', born:1967})
CREATE
(Hugo)-[:ACTED_IN {roles:['V']}]>-(VforVendetta),
(NatalieP)-[:ACTED_IN {roles:['Evey Hammond']}]>-(VforVendetta),
(StephenR)-[:ACTED_IN {roles:['Eric Finch']}]>-(VforVendetta),
(JohnH)-[:ACTED_IN {roles:['High Chancellor Adam Sutler']}]>-(VforVendetta),
(BenM)-[:ACTED_IN {roles:['Dascomb']}]>-(VforVendetta),
(JamesM)-[:DIRECTED]>-(VforVendetta),
(LillyW)-[:PRODUCED]>-(VforVendetta),
(LanaW)-[:PRODUCED]>-(VforVendetta),
(JoelS)-[:PRODUCED]>-(VforVendetta),
(LillyW)-[:WROTE]>-(VforVendetta),
(LanaW)-[:WROTE]>-(VforVendetta)

CREATE (SpeedRacer:Movie {title:'Speed Racer', released:2008, tagline:'Speed has no limits'})
CREATE (EmileH:Person {name:'Emile Hirsch', born:1985})
CREATE (JohnG:Person {name:'John Goodman', born:1960})
CREATE (SusanS:Person {name:'Susan Sarandon', born:1946})
CREATE (MatthewF:Person {name:'Matthew Fox', born:1966})
CREATE (ChristinaR:Person {name:'Christina Ricci', born:1980})
CREATE (Rain:Person {name:'Rain', born:1982})

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CREATE
(EmileH)-[:ACTED_IN {roles:['Speed Racer']}]>-(SpeedRacer),
(JohnG)-[:ACTED_IN {roles:['Pops']}]>-(SpeedRacer),
(SusanS)-[:ACTED_IN {roles:['Mom']}]>-(SpeedRacer),
(MatthewF)-[:ACTED_IN {roles:['Racer X']}]>-(SpeedRacer),
(ChristinaR)-[:ACTED_IN {roles:['Trixie']}]>-(SpeedRacer),
(Rain)-[:ACTED_IN {roles:['Taejo Togokahn']}]>-(SpeedRacer),
(BenM)-[:ACTED_IN {roles:['Cass Jones']}]>-(SpeedRacer),
(LillyW)-[:DIRECTED]>-(SpeedRacer),
(LanaW)-[:DIRECTED]>-(SpeedRacer),
(LillyW)-[:WROTE]>-(SpeedRacer),
(LanaW)-[:WROTE]>-(SpeedRacer),
(JoelS)-[:PRODUCED]>-(SpeedRacer)

CREATE (NinjaAssassin:Movie {title:'Ninja Assassin', released:2009, tagline:'Prepare to enter a secret world of assassins'})
CREATE (NaomieH:Person {name:'Naomie Harris'})
CREATE
(Rain)-[:ACTED_IN {roles:['Raizo']}]>-(NinjaAssassin),
(NaomieH)-[:ACTED_IN {roles:['Mika Coretti']}]>-(NinjaAssassin),
(RickY)-[:ACTED_IN {roles:['Takeshi']}]>-(NinjaAssassin),
(BenM)-[:ACTED_IN {roles:['Ryan Maslow']}]>-(NinjaAssassin),
(JamesM)-[:DIRECTED]>-(NinjaAssassin),
(LillyW)-[:PRODUCED]>-(NinjaAssassin),
(LanaW)-[:PRODUCED]>-(NinjaAssassin),
(JoelS)-[:PRODUCED]>-(NinjaAssassin)

CREATE (TheGreenMile:Movie {title:'The Green Mile', released:1999, tagline:"Walk a mile you'll never forget."})
CREATE (MichaelD:Person {name:'Michael Clarke Duncan', born:1957})
CREATE (DavidM:Person {name:'David Morse', born:1953})
CREATE (SamR:Person {name:'Sam Rockwell', born:1968})
CREATE (GaryS:Person {name:'Gary Sinise', born:1955})
CREATE (PatriciaC:Person {name:'Patricia Clarkson', born:1959})
CREATE (FrankD:Person {name:'Frank Darabont', born:1959})
CREATE
(TomH)-[:ACTED_IN {roles:['Paul Edgecomb']}]>-(TheGreenMile),
(MichaelD)-[:ACTED_IN {roles:['John Coffey']}]>-(TheGreenMile),
(DavidM)-[:ACTED_IN {roles:['Brutus "Brutal" Howell']}]>-(TheGreenMile),
(BonnieH)-[:ACTED_IN {roles:['Jan Edgecomb']}]>-(TheGreenMile),
(JamesC)-[:ACTED_IN {roles:['Warden Hal Moores']}]>-(TheGreenMile),
(SamR)-[:ACTED_IN {roles:['"Wild Bill" Wharton']}]>-(TheGreenMile),
(GaryS)-[:ACTED_IN {roles:['Burt Hammersmith']}]>-(TheGreenMile),
(PatriciaC)-[:ACTED_IN {roles:['Melinda Moores']}]>-(TheGreenMile),
(FrankD)-[:DIRECTED]>-(TheGreenMile)

CREATE (FrostNixon:Movie {title:'Frost/Nixon', released:2008, tagline:'400 million people were waiting for the truth.'})
CREATE (FrankL:Person {name:'Frank Langella', born:1938})
CREATE (MichaelS:Person {name:'Michael Sheen', born:1969})
CREATE (OliverP:Person {name:'Oliver Platt', born:1960})
CREATE
(FrankL)-[:ACTED_IN {roles:['Richard Nixon']}]>-(FrostNixon),
(MichaelS)-[:ACTED_IN {roles:['David Frost']}]>-(FrostNixon),
(KevinB)-[:ACTED_IN {roles:['Jack Brennan']}]>-(FrostNixon),
(OliverP)-[:ACTED_IN {roles:['Bob Zelnick']}]>-(FrostNixon),
(SamR)-[:ACTED_IN {roles:['James Reston, Jr.']]>-(FrostNixon),
(RonH)-[:DIRECTED]>-(FrostNixon)

CREATE (Hoffa:Movie {title:'Hoffa', released:1992, tagline:'He didn't want law. He wanted justice.'})
CREATE (DannyD:Person {name:'Danny DeVito', born:1944})
CREATE (JohnR:Person {name:'John C. Reilly', born:1965})
CREATE
(JackN)-[:ACTED_IN {roles:['Hoffa']}]>-(Hoffa),
(DannyD)-[:ACTED_IN {roles:['Robert "Bobby" Ciaro']}]>-(Hoffa),
(JTW)-[:ACTED_IN {roles:['Frank Fitzsimmons']}]>-(Hoffa),
(JohnR)-[:ACTED_IN {roles:['Peter "Pete" Connelly']}]>-(Hoffa),
(DannyD)-[:DIRECTED]>-(Hoffa)

CREATE (Apollo13:Movie {title:'Apollo 13', released:1995, tagline:'Houston, we have a problem.'})
CREATE (EdH:Person {name:'Ed Harris', born:1950})
CREATE (BillPax:Person {name:'Bill Paxton', born:1955})
CREATE
(TomH)-[:ACTED_IN {roles:['Jim Lovell']}]>-(Apollo13),
(KevinB)-[:ACTED_IN {roles:['Jack Swigert']}]>-(Apollo13),
(EdH)-[:ACTED_IN {roles:['Gene Kranz']}]>-(Apollo13),
(BillPax)-[:ACTED_IN {roles:['Fred Haise']}]>-(Apollo13),
(GaryS)-[:ACTED_IN {roles:['Ken Mattingly']}]>-(Apollo13),
(RonH)-[:DIRECTED]>-(Apollo13)

CREATE (Twister:Movie {title:'Twister', released:1996, tagline:"Don't Breathe. Don't Look Back."})
CREATE (PhilipH:Person {name:'Philip Seymour Hoffman', born:1967})
CREATE (JanB:Person {name:'Jan de Bont', born:1943})
CREATE
(BillPax)-[:ACTED_IN {roles:['Bill Harding']}]>-(Twister),
(HelenH)-[:ACTED_IN {roles:['Dr. Jo Harding']}]>-(Twister),
(ZachG)-[:ACTED_IN {roles:['Eddie']}]>-(Twister),
(PhilipH)-[:ACTED_IN {roles:['Dustin "Dusty" Davis']}]>-(Twister),
(JanB)-[:DIRECTED]>-(Twister)

CREATE (CastAway:Movie {title:'Cast Away', released:2000, tagline:'At the edge of the world, his journey begins.'})
CREATE (RobertZ:Person {name:'Robert Zemeckis', born:1951})
CREATE
(TomH)-[:ACTED_IN {roles:['Chuck Noland']}]>-(CastAway),
(HelenH)-[:ACTED_IN {roles:['Kelly Frears']}]>-(CastAway),
(RobertZ)-[:DIRECTED]>-(CastAway)

```

Shane Stacy, CIS360-01

```
CREATE (OneFlewOvertheCuckoosNest:Movie {title:"One Flew Over the Cuckoo's Nest", released:1975, tagline:"If he's crazy, what does that make you?"})
CREATE (MilosF:Person {name:'Milos Forman', born:1932})
CREATE
(JackN)-[:ACTED_IN {roles:['Randle McMurphy']}]->(OneFlewOvertheCuckoosNest),
(DannyD)-[:ACTED_IN {roles:['Martini']}]->(OneFlewOvertheCuckoosNest),
(MilosF)-[:DIRECTED]->(OneFlewOvertheCuckoosNest)

CREATE (SomethingsGottaGive:Movie {title:"Something's Gotta Give", released:2003})
CREATE (DianeK:Person {name:'Diane Keaton', born:1946})
CREATE (NancyM:Person {name:'Nancy Meyers', born:1949})
CREATE
(JackN)-[:ACTED_IN {roles:['Harry Sanborn']}]->(SomethingsGottaGive),
(DianeK)-[:ACTED_IN {roles:['Erica Barry']}]->(SomethingsGottaGive),
(Keanu)-[:ACTED_IN {roles:['Julian Mercer']}]->(SomethingsGottaGive),
(NancyM)-[:DIRECTED]->(SomethingsGottaGive),
(NancyM)-[:PRODUCED]->(SomethingsGottaGive),
(NancyM)-[:WROTE]->(SomethingsGottaGive)

CREATE (BicentennialMan:Movie {title:'Bicentennial Man', released:1999, tagline:"One robot's 200 year journey to become an ordinary man."})
CREATE (ChrisC:Person {name:'Chris Columbus', born:1958})
CREATE
(Robin)-[:ACTED_IN {roles:['Andrew Marin']}]->(BicentennialMan),
(OliverP)-[:ACTED_IN {roles:['Rupert Burns']}]->(BicentennialMan),
(ChrisC)-[:DIRECTED]->(BicentennialMan)

CREATE (CharlieWilsonWar:Movie {title:"Charlie Wilson's War", released:2007, tagline:"A stiff drink. A little mascara. A lot of nerve. Who said they couldn't bring down the Soviet empire."})
CREATE (JuliaR:Person {name:'Julia Roberts', born:1967})
CREATE
(TomH)-[:ACTED_IN {roles:['Rep. Charlie Wilson']}]->(CharlieWilsonWar),
(JuliaR)-[:ACTED_IN {roles:['Joanne Herring']}]->(CharlieWilsonWar),
(PhilipH)-[:ACTED_IN {roles:['Gust Avrakotos']}]->(CharlieWilsonWar),
(MikeN)-[:DIRECTED]->(CharlieWilsonWar)

CREATE (ThePolarExpress:Movie {title:'The Polar Express', released:2004, tagline:'This Holiday Season... Believe'})
CREATE
(TomH)-[:ACTED_IN {roles:['Hero Boy', 'Father', 'Conductor', 'Hobo', 'Scrooge', 'Santa Claus']}]->(ThePolarExpress),
(RobertZ)-[:DIRECTED]->(ThePolarExpress)

CREATE (ALeagueofTheirOwn:Movie {title:'A League of Their Own', released:1992, tagline:'Once in a lifetime you get a chance to do something different.'})
CREATE (Madonna:Person {name:'Madonna', born:1954})
CREATE (GeenaD:Person {name:'Geena Davis', born:1956})
CREATE (LoriP:Person {name:'Lori Petty', born:1963})
CREATE (PennyM:Person {name:'Penny Marshall', born:1943})
CREATE
(TomH)-[:ACTED_IN {roles:['Jimmy Dugan']}]->(ALeagueofTheirOwn),
(GeenaD)-[:ACTED_IN {roles:['Dottie Hinson']}]->(ALeagueofTheirOwn),
(LoriP)-[:ACTED_IN {roles:['Kit Keller']}]->(ALeagueofTheirOwn),
(RosieO)-[:ACTED_IN {roles:['Doris Murphy']}]->(ALeagueofTheirOwn),
(Madonna)-[:ACTED_IN {roles:['"All the Way" Mae Mordabito']}]->(ALeagueofTheirOwn),
(BillPax)-[:ACTED_IN {roles:['Bob Hinson']}]->(ALeagueofTheirOwn),
(PennyM)-[:DIRECTED]->(ALeagueofTheirOwn)

CREATE (PaulBlythe:Person {name:'Paul Blythe'})
CREATE (AngelaScope:Person {name:'Angela Scope'})
CREATE (JessicaThompson:Person {name:'Jessica Thompson'})
CREATE (JamesThompson:Person {name:'James Thompson'})

CREATE
(JamesThompson)-[:FOLLOWS]->(JessicaThompson),
(AngelaScope)-[:FOLLOWS]->(JessicaThompson),
(PaulBlythe)-[:FOLLOWS]->(AngelaScope)

CREATE
(JessicaThompson)-[:REVIEWED {summary:'An amazing journey', rating:95}]->(CloudAtlas),
(JessicaThompson)-[:REVIEWED {summary:'Silly, but fun', rating:65}]->(TheReplacements),
(JamesThompson)-[:REVIEWED {summary:'The coolest football movie ever', rating:100}]->(TheReplacements),
(AngelaScope)-[:REVIEWED {summary:'Pretty funny at times', rating:62}]->(TheReplacements),
(JessicaThompson)-[:REVIEWED {summary:'Dark, but compelling', rating:85}]->(Unforgiven),
(JessicaThompson)-[:REVIEWED {summary:'Slapstick redeemed only by the Robin Williams and Gene Hackman's stellar performances', rating:45}]->(TheBirdcage),
(JessicaThompson)-[:REVIEWED {summary:'A solid romp', rating:68}]->(TheDaVinciCode),
(JamesThompson)-[:REVIEWED {summary:'Fun, but a little far fetched', rating:65}]->(TheDaVinciCode),
(JessicaThompson)-[:REVIEWED {summary:'You had me at Jerry', rating:92}]->(JerryMaguire)

WITH TomH as a
MATCH (a)-[:ACTED_IN]->(m)<[:DIRECTED]->(d) RETURN a,m,d LIMIT 10;

MATCH (tom {name: "Tom Hanks"}) RETURN tom

MATCH (cloudAtlas {title: "Cloud Atlas"}) RETURN cloudAtlas

MATCH (people:Person) RETURN people.name LIMIT 10

MATCH (nineties:Movie) WHERE nineties.released >= 1990 AND nineties.released < 2000 RETURN nineties.title

MATCH (tom:Person {name: "Tom Hanks"})-[:ACTED_IN]->(tomHanksMovies) RETURN tom,tomHanksMovies

MATCH (cloudAtlas {title: "Cloud Atlas"})<[:DIRECTED]->(directors) RETURN directors.name

MATCH (tom:Person {name:"Tom Hanks"})-[:ACTED_IN]->(m)<[:ACTED_IN]->(coActors) RETURN coActors.name

MATCH (people:Person)-[:relatedTo]->(Movie {title: "Cloud Atlas"}) RETURN people.name, Type(relatedTo), relatedTo

MATCH (bacon:Person {name:"Kevin Bacon"})-[*1..4]-(hollywood)
```

```
RETURN DISTINCT hollywood
```

```
MATCH p=shortestPath(
(bacon:Person {name:"Kevin Bacon"})-[*]-(meg:Person {name:"Meg Ryan"})
)
RETURN p
```

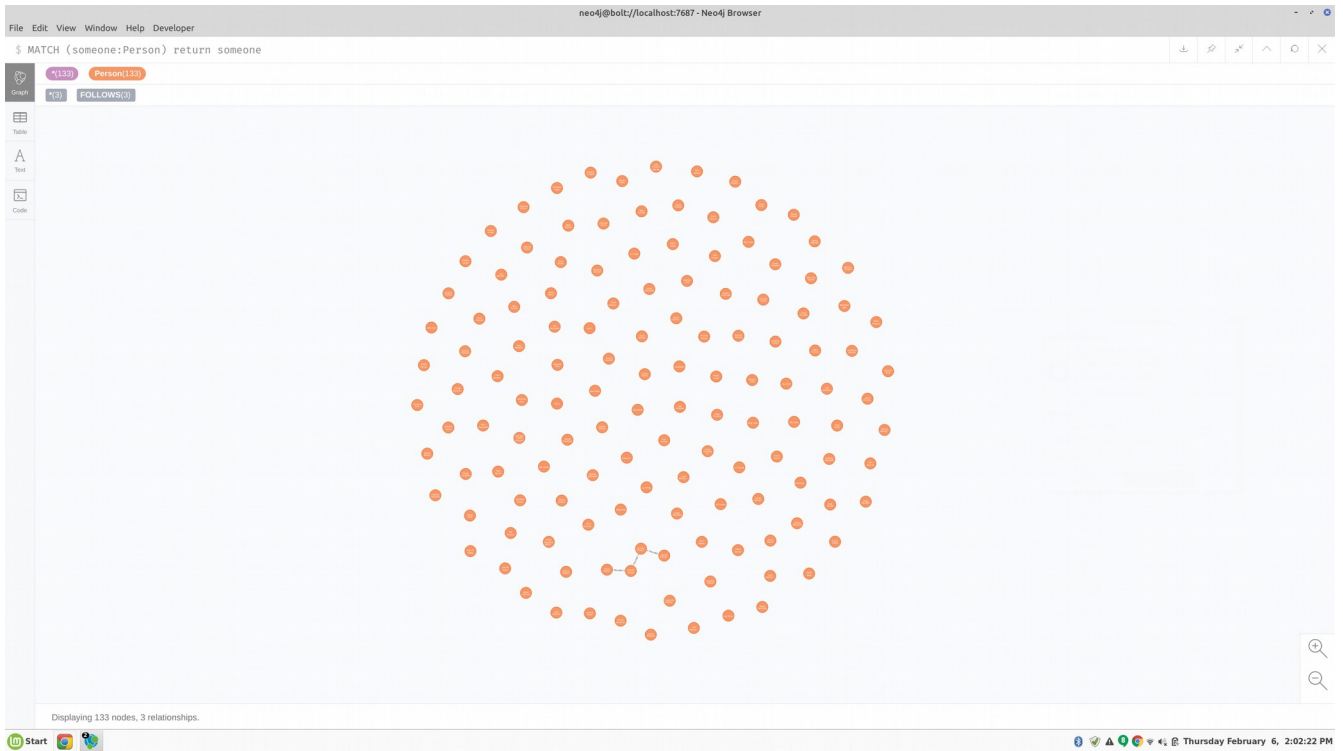
```
MATCH (tom:Person {name:"Tom Hanks"})-[:ACTED_IN]->(m)-[:ACTED_IN]-(coActors),
      (coActors)-[:ACTED_IN]->(m2)-[:ACTED_IN]-(cocoActors)
WHERE NOT (tom)-[:ACTED_IN]->()-[:ACTED_IN]-(cocoActors) AND tom <> cocoActors
RETURN cocoActors.name AS Recommended, count(*) AS Strength ORDER BY Strength DESC
```

```
MATCH (tom:Person {name:"Tom Hanks"})-[:ACTED_IN]->(m)-[:ACTED_IN]-(coActors),
      (coActors)-[:ACTED_IN]->(m2)-[:ACTED_IN]-(cruise:Person {name:"Tom Cruise"})
RETURN tom, m, coActors, m2, cruise
```

```
MATCH (n) DETACH DELETE n
```

```
MATCH (n) RETURN n
```

Step 2B:



The screenshot shows the Neo4j Browser interface with the query `MATCH (someone:Person) return someone.name`. The table view displays the names of the 133 nodes. The table has a single column labeled `someone.name`. The status bar at the bottom indicates "Started streaming 133 records after 2 ms and completed after 5 ms."

someone.name
"Keanu Reeves"
"Carrie-Anne Moss"
"Laurence Fishburne"
"Hugo Weaving"
"Lilly Wachowski"
"Lana Wachowski"
"Joel Silver"
"Enil Eifrem"
"Charlize Theron"
"Al Pacino"
"Taylor Hackford"
"Tom Cruise"
"Jack Nicholson"
"Demi Moore"
"Kevin Bacon"
"Kiefer Sutherland"
"Noah Wyle"
"Cuba Gooding Jr."
"Kevin Pollak"

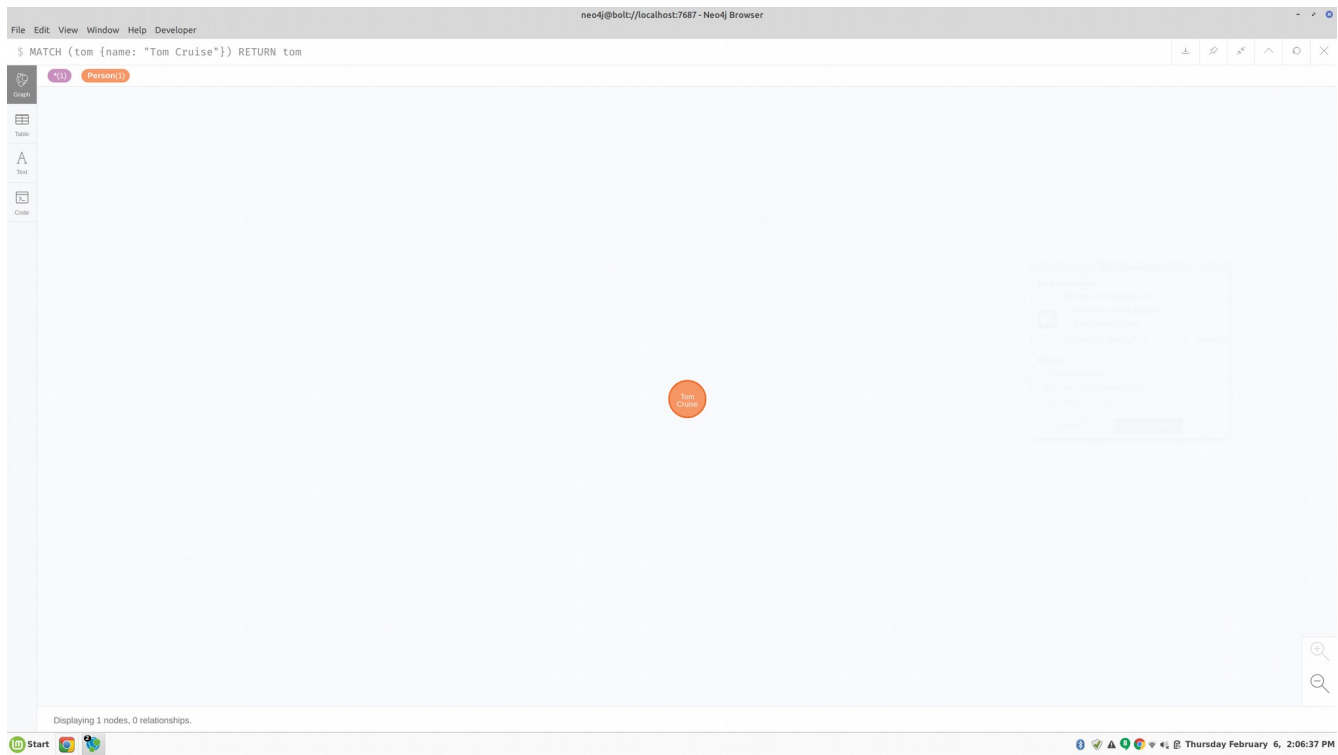

```
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  },
  {
    "someone.name": "Laurence Fishburne"
  },
  {
    "someone.name": "Hugo Weaving"
  },
  {
    "someone.name": "Lilly Wachowski"
  },
  {
    "someone.name": "Lana Wachowski"
  },
  {
    "someone.name": "Joel Silver"
  },
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    "someone.name": "Emil Eifrem"
  },
  {
    "someone.name": "Charlize Theron"
  },
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  },
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  },
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    "someone.name": "Kevin Pollak"
  },
  {
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  },
  {
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    "someone.name": "Christopher Guest"
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  {
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  {
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  {
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  },
  {
    "someone.name": "Val Kilmer"
  },
  {
    "someone.name": "Anthony Edwards"
  },
  {
    "someone.name": "Tom Skerritt"
  },
  {
    "someone.name": "Meg Ryan"
  },
  {
    "someone.name": "Tony Scott"
  },
  {
    "someone.name": "Jim Cash"
  },
]
```

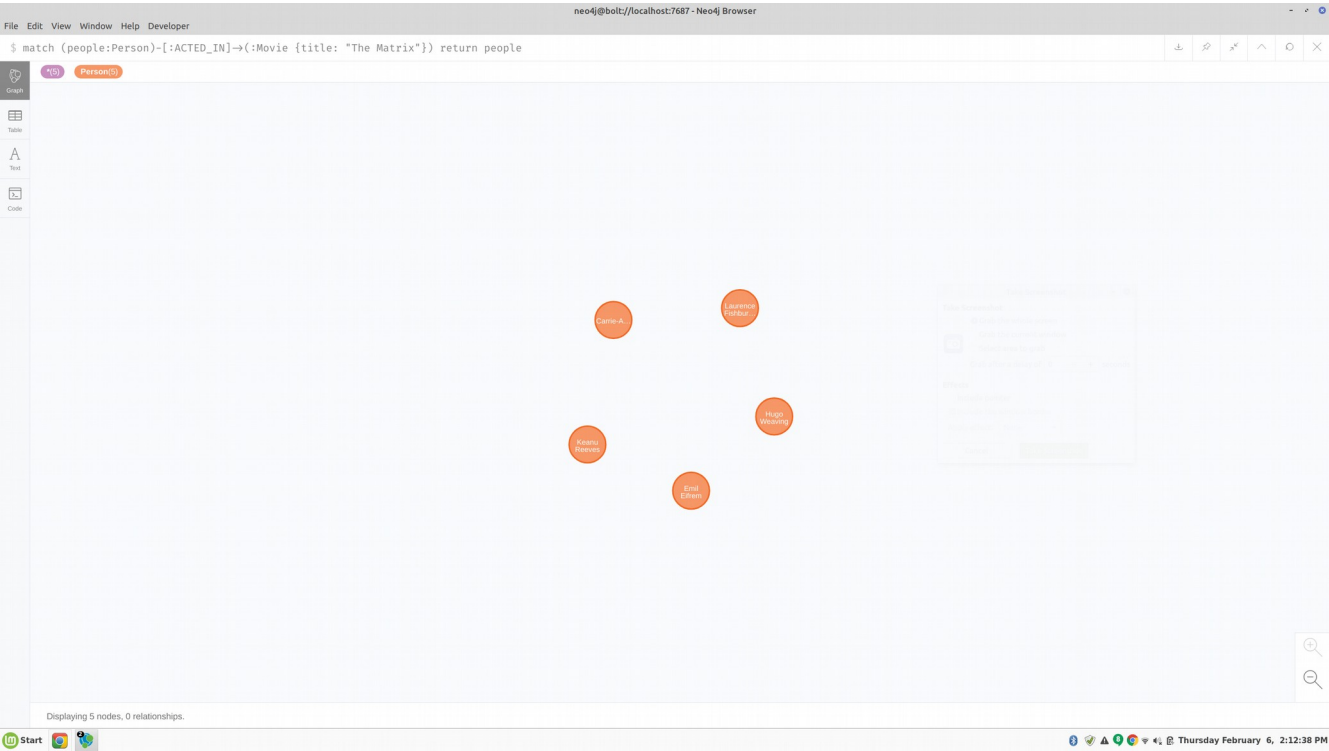
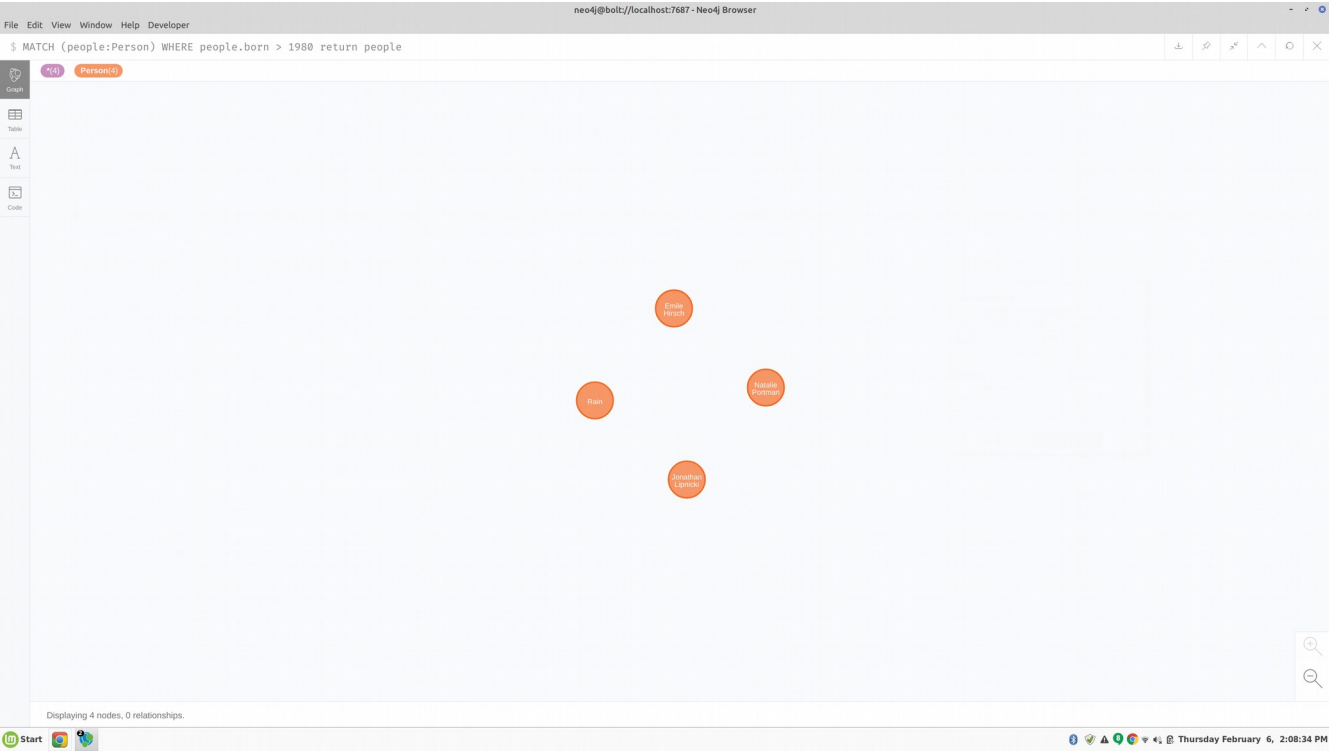
```
{
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{
  "someone.name": "Kelly Preston"
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{
  "someone.name": "Jerry O'Connell"
},
{
  "someone.name": "Jay Mohr"
},
{
  "someone.name": "Bonnie Hunt"
},
{
  "someone.name": "Regina King"
},
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},
{
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},
{
```

```
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},
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},
{
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},
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},
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},
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},
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},
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},
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},
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},
{
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},
{
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},
{
  "someone.name": "James Thompson"
}
}
```





FileEditViewWindowHelpDeveloper

neo4j@bolt://localhost:7687 - Neo4j Browser

\$ match (mov:Movie)-[:DIRECTED]-(directors) return mov.title, directors.name

Tools

Text

Code

mov.title	directors.name
"The Matrix"	"Lana Wachowski"
"The Matrix"	"Lilly Wachowski"
"The Matrix Reloaded"	"Lana Wachowski"
"The Matrix Reloaded"	"Lilly Wachowski"
"The Matrix Revolutions"	"Lana Wachowski"
"The Matrix Revolutions"	"Lilly Wachowski"
"The Devil's Advocate"	"Taylor Hackford"
"A Few Good Men"	"Rob Reiner"
"Top Gun"	"Tony Scott"
"Jerry Maguire"	"Cameron Crowe"
"Stand By Me"	"Rob Reiner"
"As Good as It Gets"	"James L. Brooks"
"What Dreams May Come"	"Vincent Ward"
"Snow Falling on Cedars"	"Scott Hicks"
"You've Got Mail"	"Nora Ephron"
"Sleepless in Seattle"	"Nora Ephron"
"Joe Versus the Volcano"	"John Patrick Stanley"
"When Harry Met Sally"	"Rob Reiner"
"That Thing You Do"	"Tom Hanks"

Started streaming 44 records after 2 ms and completed after 39 ms.

start

Tuesday February 11, 6:53:44 PM

```
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  {
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  {
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    "directors.name": "Lana Wachowski"
  },
  {
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    "directors.name": "Lilly Wachowski"
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  {
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  {
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    "directors.name": "Taylor Hackford"
  },
  {
    "mov.title": "A Few Good Men",
    "directors.name": "Rob Reiner"
  },
  {
    "mov.title": "Top Gun",
    "directors.name": "Tony Scott"
  },
  {
    "mov.title": "Jerry Maguire",
    "directors.name": "Cameron Crowe"
  },
  {
    "mov.title": "Stand By Me",
    "directors.name": "Rob Reiner"
  },
  {
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  },
  {
  }
```

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{
  "mov.title": "Snow Falling on Cedars",
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},
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},
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  "directors.name": "Penny Marshall"
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Step #3: Graph algorithm and machine learning short answers - 50% credit

Review the online documentation and O'Reilly textbooks provided by Neo4J;

<https://neo4j.com/developer/graph-algorithms>, <https://neo4j.com/docs/graph-algorithms/3.5>, and <https://neo4j.com/graph-machine-learning-algorithms>.

Select ONE of the following algorithms:

- Betweenness centrality

Provide short answers to the following questions for your ONE selected algorithm:

- Describe the problem that the algorithm solves.

The algorithm solves how a node who is between every pair of vertices affects the flow of information. PageRank is an example of a betweenness centrality algorithm which helps rank search results based on how often a particular page is referenced by other pages.

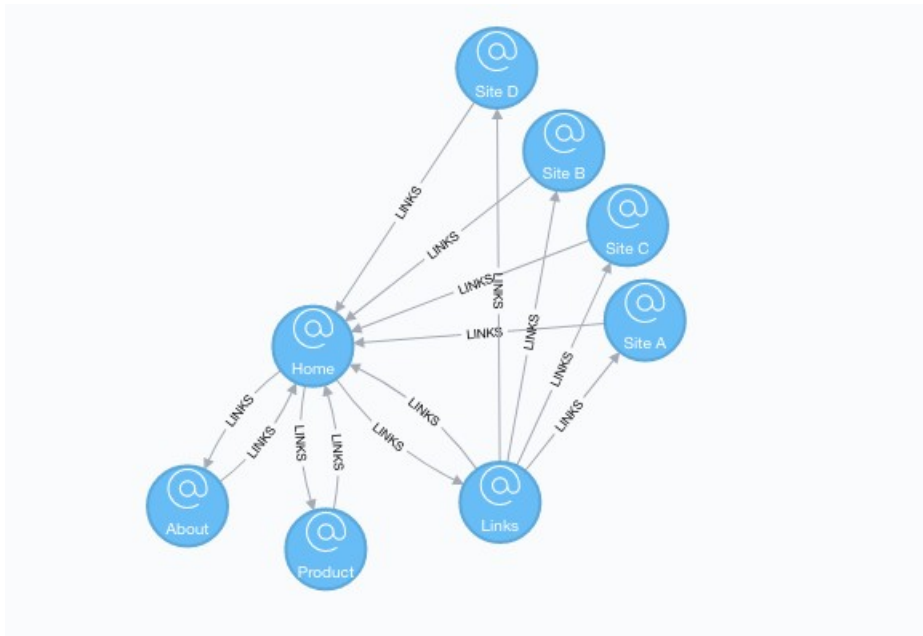
- Describe how the technique works in your own words.

The technique works like this:

$$PR(A) = (1-d) + d (PR(T1)/C(T1) + \dots + PR(Tn)/C(Tn))$$

Page A has pages T1 to Tn pointing to it. C(A) is defined as the number of pages Page A links to. d here is a “dampening factor” which can be used to selectively alter how high certain search results appear.

- Find a diagram/image (from any source) that graphically supports your descriptions.



- Describe a specific case study (e.g., data and data model) and information need to which this algorithm could be applied.

Well other than Google's use of it in their search engine, it could also be used for archives and databases (a library data model) where people often search for scholarly works to reference, and it helps to have the most reputable (hopefully) sources come up first to save people from digging.