**Homework 3 – Brennan Giles - CS440**

1. I would push down Rating and Year Requirement, then project on country attribute and title attribute. Last I would join Movie.StudioName and studio.name.

COST:

For push (1/3 of 2400 T(movie)) 1/10 for rating and T(movie) 24000/(10 \* 3) = 800

For project it stays the same, no cost added so 800

For Join 1000\*8000/1000 = 800

T(R) = 4000 T(S) = 3000 T(W) = 2000 T(U) = 1000

|  |  |  |  |
| --- | --- | --- | --- |
| Query | Size | Cost | plan |
| RS | 120 | 0 |  |
| RW | 80 | 0 |  |
| RU | 40 | 0 |  |
| SW | 60 | 0 |  |
| SU | 30 | 0 |  |
| WU | 20 | 0 |  |
| RSW | RS)W: 2.4M  RW)S: 2.4M  SW)R 2.4M | RS)W: 120k  RW)S: 80k  SW)R: 60k | (SW)R |
| RSU | RS)U: 1.2M  RU)S: 1.2M  SU)R: 1.2M | RS)U: 120k  RU)S: 40k  SU)R: 30k | (SU)R |
| WSU | WS)U: .6M  WU)S: .6M  SU)W: .6M | WS)U: 60k  WU)S: 20k  SU)W: 30k | (WU)S |
| WUR | WU)R: .8M  WR)U: .8M  RU)W: .8M | WU)R: 20k  WR)U: 80k  RU)W: 40k | (WU)R |
| RSWU | (SW)R)U: 24M  (SU)R)W: 24M  (WU)S)R: 24M  (WU)R)S: 24M | (SW)R)U: 2.4M  (SU)R)W: 1.2M  (WU)S)R: .6M  (WU)R)S: .8M | ((WU)S)R |

3.1. Serializable and 2PL. Serializable because no cycles of conflict, 2PL because there are no locks with conflicting commands

3.2 Not Serializable, because there is a cycle between T2 and T3. Not 2PL because not Serializable

3.3 Not Serializable, loop between T1 and T2. Not 2PL because not Serializable

3.4 Not Serializable, loop between T1 and T2.