**Assignment 5 (6%)**

Follow the following steps:

1. Find the capital city of these states in the US:
   1. Washington: Olympia
   2. Oregon: Salem
   3. California: Sacramento
   4. Idaho: Boise
   5. Montana: Helena
   6. Nevada: Carson
   7. Utah: Salt Lake City
   8. Colorado: Denver
   9. Nebraska: Lincoln
   10. Wyoming: Cheyenne
   11. North Dakota: Bismarck
   12. South Dakota: Pierre
2. Use Google Maps to find the highway between the every pair of cities and the corresponding distance, from West to East. You should only pair the cities of the border-sharing states. Record the data in a **table**;

**Table**

|  |  |
| --- | --- |
| Pair | Distance and HIghway |
| Olympia- Salem | 160 miles, I-5 Highway |
| Salem- Sacramento | 536 miles, I-5 Highway |
| Sacramento- Carson | 130 miles, US-50 |
| Carson- Boise | 450 miles, I-80 E Highway and US-95N |
| Boise- Helena | 488 miles, I-84 E, I-15 N, US-287 N |
| Carson- Salt Lake City | 546 miles, I-80 E |
| Salt Lake City- Denver | 516 miles, I-80 E |
| Cheyenne- Lincoln | 486 miles, I-80 E |
| Denver- Cheyenne | 102 miles, I-25 N |
| Lincoln- Pierre | 390 miles, I-80 W, US-83 N |
| Pierre- Bismarck | 205 miles, US- 83 N |

1. Convert the above table into a weighted graph;

**Weighted Graph**

Olympia --(160)--> Salem --(536)--> Sacramento --(130)--> Carson City

Carson City --(450)--> Boise

Boise --(488)--> Helena

Carson City --(546)--> Salt Lake City

Salt Lake City --(516)--> Denver

Denver --(102)--> Cheyenne

Cheyenne --(486)--> Lincoln

Lincoln --(390)--> Pierre

**Pierre --(205)--> Bismarck**

1. Implement the **graph** using Java;

**Java Weighted Graph**

1. Find the **path** from **Olympia to Denver** and (**other cities**) and the corresponding (shortest) **total distance** and display the info.

Test the code and take screenshots.

Submit your Java code and the screenshots as a zip file for grades.

476

160 miles