Q1:

**Kmeans clustering output:**

**Cluster id - 4 --> (1997,Exorcist, The (1973) , Horror):::(1994,Poltergeist (1982) , Horror|Thriller)**

**Cluster id - 0 --> (627,Last Supper, The (1995) , Drama|Thriller):::(436,Color of Night (1994) , Drama|Thriller):::(2277,Somewhere in the City (1997) , Drama):::(3395,Nadine (1987) , Comedy):::(2814,Bat, The (1959) , Horror)**

**Cluster id - 1 --> (1127,Abyss, The (1989) , Action|Adventure|Sci-Fi|Thriller):::(541,Blade Runner (1982) , Film-Noir|Sci-Fi):::(1374,Star Trek: The Wrath of Khan (1982) , Action|Adventure|Sci-Fi):::(1376,Star Trek IV: The Voyage Home (1986) , Action|Adventure|Sci-Fi):::(1196,Star Wars: Episode V - The Empire Strikes Back (1980) , Action|Adventure|Drama|Sci-Fi|War)**

**Cluster id - 6 --> (1499,Anaconda (1997) , Action|Adventure|Thriller)**

**Cluster id - 8 --> (1288,This Is Spinal Tap (1984) , Comedy|Drama|Musical):::(1968,Breakfast Club, The (1985) , Comedy|Drama):::(1193,One Flew Over the Cuckoo's Nest (1975) , Drama):::(1285,Heathers (1989) , Comedy):::(1197,Princess Bride, The (1987) , Action|Adventure|Comedy|Romance)**

**Cluster id - 7 --> (1608,Air Force One (1997) , Action|Thriller):::(3256,Patriot Games (1992) , Action|Thriller):::(1370,Die Hard 2 (1990) , Action|Thriller):::(380,True Lies (1994) , Action|Adventure|Comedy|Romance):::(1573,Face/Off (1997) , Action|Sci-Fi|Thriller)**

**Cluster id - 9 --> (1234,Sting, The (1973) , Comedy|Crime):::(1233,Boat, The (Das Boot) (1981) , Action|Drama|War):::(1090,Platoon (1986) , Drama|War):::(2194,Untouchables, The (1987) , Action|Crime|Drama):::(1287,Ben-Hur (1959) , Action|Adventure|Drama)**

**Cluster id - 3 --> (1704,Good Will Hunting (1997) , Drama):::(2858,American Beauty (1999) , Comedy|Drama):::(50,Usual Suspects, The (1995) , Crime|Thriller):::(296,Pulp Fiction (1994) , Crime|Drama):::(527,Schindler's List (1993) , Drama|War)**

**Cluster id - 5 --> (3770,Dreamscape (1984) , Adventure|Crime|Sci-Fi|Thriller):::(1013,Parent Trap, The (1961) , Children's|Drama):::(2457,Running Scared (1986) , Action|Comedy):::(222,Circle of Friends (1995) , Drama|Romance):::(535,Short Cuts (1993) , Drama)**

**Cluster id - 2 --> (104,Happy Gilmore (1996) , Comedy):::(1375,Star Trek III: The Search for Spock (1984) , Action|Adventure|Sci-Fi):::(1391,Mars Attacks! (1996) , Action|Comedy|Sci-Fi|War):::(539,Sleepless in Seattle (1993) , Comedy|Romance):::(552,Three Musketeers, The (1993) , Action|Adventure|Comedy)**

**Q2: Decision Tree Accuracy and Output:**

**Accuracy for Decision Tree Algorithm is : 92.40506329113924%**

**Naïve Bayes output:**

**Accuracy for Naive Bayes Algorithm is : 81.0126582278481%**

**Q3:**

**MSE= 0.863519769232378**

**Accuracy: 86.3519769232378%**

**Q4:**

**Setting need for Kibana**

**PUT twitter2**

**{**

**"mappings": {**

**"tweet": {**

**"properties": {**

**"Geo-locaiton": {**

**"type": "geo-point"**

**},**

**"Sentiment": {**

**"type": "text"**

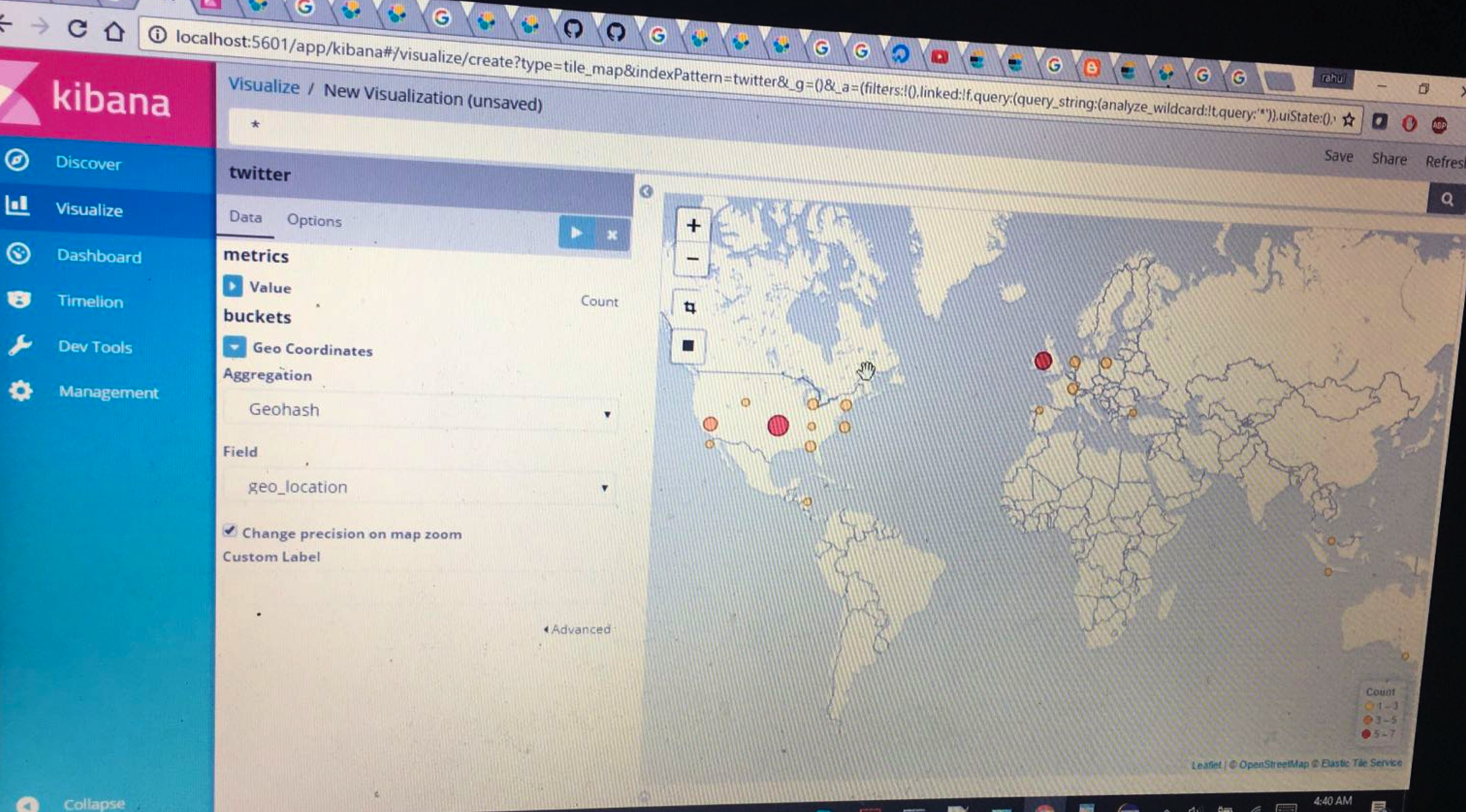
**}**

**}**

**}**

**}**

**}**

****