Case Study: Aadhaar Card

Checkpoint 1: Data Understanding (600 Marks)

1. Describe the data in hand in your own words. Refer to the official documentation of Aadhaar/Unique ID project, and explain its applicability in Indian society. Your answer SHOULD not go beyond 500 words. **(600 Marks)**

**#Write your answer here.**

The Aadhar registration scheme is launched by Govt of India under set up Unique Identification Authority of India (UIDAI),following are highlights of Aaadhar scheme.

1. The UIDAI is mandated to assign a 12-digit unique identification (UID) number (termed as Aadhaar) to all the residents of India.
2. The number is linked to the resident's basic demographic and biometric information such as photograph, fingerprints and iris scans, which are stored in a centralised database, thus eliminates duplicate and fake identities.
3. The unique ID would qualify for as a valid ID while availing various government services, like a LPG connection or subsidised ration or pension schemes, e-sign, digital locker,Universal Account Number (UAN) and for some other services, like a SIM card or opening a bank account

Aadhar registration dataset imparts following information.

1. The date at which registration happen ,using this attribute we can figure out the period intervals of registration.
2. Registartion offices can be figure out where maximum or minimum registartion happened.
3. Female/Male ratio within the district /sub district/state.
4. The involvement of the private agencies in the registration process.
5. Status of the Aadhar generation /rejection .
6. How many people using mobiles or access to email ids.
7. We can club all the attributes with diferent permutations to find other relevant info such as which state /district shows maximum/minimum involvement of registration, number of Aadhar generated in states .
8. Where maximum aadhar generated and percentage of males /females within district /state.

Checkpoint 2: SparkSQL Skills (1400 Marks)

Provide the Notebook ID here. The Notebook ID is the FIVE digit number that is visible just above your notebook name, for e.g. ID: 12345.

**Notebook id: 28514**

1. Create a table using the data file and describe the schema. **Hint: Create the table using name aadhaar\_DDANUMBER, to avoid the conflicts. Also note that there are no headers in the file.** (200 Marks)

**#Write your query and comments here.**

**hdfs dfs -mkdir s3://ughdfsdemo/tmp/sparkSQL\_aadhaar\_DD1610216/**

**hdfs dfs -cp s3://ughdfsdemo/aadhaar\_small\_data/ s3://ughdfsdemo/tmp/sparkSQL\_aadhaar\_DD1610216/**

**I could see the header information**

s3://ughdfsdemo/tmp/sparkSQL\_aadhaar\_DD1610216/aadhaar\_small\_data

**%dep**

**z.load("com.databricks:spark-csv\_2.10:1.2.0")**

**%sql**

**CREATE TABLE aadhaar\_DD1610216**

**USING com.databricks.spark.csv**

**OPTIONS (path "s3://ughdfsdemo/tmp/sparkSQL\_aadhaar\_DD1610216/aadhaar\_small\_data", header "true", inferschema "true")**

**%sql**

**select \* from aadhaar\_DD1610216 limit 5**

1. Find the count and names of registrars in the table. (200 Marks)

**#Write your query and comments here.**

**%sql**

**select distinct Registrar, count(\*) from aadhaar\_DD1610216 group by Registrar**

|  |  |
| --- | --- |
| DC ITANAGAR CAPITAL COMPLEX | 21 |
| Department of Information Technology Govt of Jharkhand | 7675 |
| Mission Convergence - GNCT Del | 23 |
| U P Electronics Corporation Limited | 2595 |
| IGNOU | 1 |
| Union Bank | 154429 |
| CSC e-Governance Services India Limited | 3767648 |
| Life Insurance Corporation | 2 |
| Madhya Pradesh State Electronics Development Corporation Ltd. | 220206 |
| Civil Supplies - A&N Islands | 916 |
| Directorate of Public Health and Family Welfare Govt of Andhra Pradesh | 679 |
| Director Health and Family Welfare UT | 1261 |
| Govt of Goa | 5564 |
| Govt. of Uttarkhand | 3637 |
| Indian Bank | 7 |
| Information Technology & Communication Department | 44839 |
| Govt of UT of Chandigarh | 2076 |
| UT of Puducherry | 124 |
| FCS Govt of Punjab | 4645 |
| Punjab National Bank | 56635 |
| Govt of Maharashtra | 7482 |
| National Institute of Electronics & Information Technology | 743 |
| IDBI Bank ltd | 892 |
| Govt of Himachal Pradesh | 10694 |
| Director General Health Services Health Deptt Haryana | 7588 |
| FCR Govt of Haryana | 30590 |
| Syndicate Bank | 1 |
| Punjab and Sind Bank | 27422 |
| Govt of Sikkim - Dept of Econo | 523 |
| Bank of Maharashtra | 13 |
| Govt of Madhya Pradesh | 105 |
| Atalji Janasnehi Directorate Government of Karnataka | 44215 |
| State Bank of Bikaner & Jaipur | 7 |
| STATE BANK OF HYDERABAD | 2 |
| Govt. of Mizoram | 10395 |
| UT Govt. Of Dadra & Nagar Haveli | 1740 |
| Registrar General of India ITI | 37309 |
| U.P. Development Systems Corporation Ltd | 81154 |
| DIT Lakshadweep | 319 |
| Dept of ITC Govt of Rajasthan | 167010 |
| Govt of Karnataka | 137127 |
| NSDL e-Governance Infrastructure Limited | 1040511 |
| State Bank of India | 62963 |
| DENA BANK | 613603 |
| UIDAI-Registrar | 1629 |
| Govt of Gujarat | 231213 |
| National Cooperative Consumers Federation Of India Limited | 37176 |
| Delhi - NE DC | 27 |
| Delhi - Central DC | 8 |
| Delhi Urban Shelter Improvemen | 17 |
| Delhi-NW DC | 21 |
| Govt of Andhra Pradesh | 675 |
| Registrar General India Others | 292 |
| Eastern Railway | 14 |
| Delhi - ND DC | 1 |
| Rural Development Dept Govt. of Bihar | 56448 |
| Allahabad Bank | 1293 |
| Delhi - East DC | 12 |
| Canara Bank | 35057 |
| Registrar General India ECIL | 79579 |
| UTI Infrastructure Technology & Services Limited | 52272 |
| Principal Revenue Commissioner Dept of Revenue Govt of MP | 3 |
| Delhi- West DC | 23 |
| Central Bank of India | 70 |
| Bank of Baroda | 44204 |
| Registrar General India - BEL | 37 |
| UT Of Daman and Diu | 590 |
| Registrar General India BEL2 | 99213 |
| KUA registrar | 8 |
| Govt of Kerala | 94921 |
| Delhi SW DC | 31 |
| Delhi- South DC | 7 |
| RDD Govt of Tripura | 4306 |
| Jharkhand | 136 |
| Tamil Nadu eGovernance Agency | 198123 |
| Oriental Bank of Commerce | 38 |
| Bank Of India | 317175 |
| Delhi - North DC | 14 |
| Chief Registrar Births & Deaths -cum-Director Health Services | 185 |
| Registrar | 1 |
| Indiapost | 90 |
| Directorate of Woman and Child Development Government of Himachal Pradesh | 2710 |

1. Find the number of states, districts in each state and sub-districts in each district. (300 Marks)

**#Write your query and comments here.**

**%sql**

**select count(distinct(state)) from aadhaar\_DD1610216**

**38**

**%sql**

**select state, count(distinct(district)) from aadhaar\_DD1610216 group by state**

|  |  |
| --- | --- |
| Maharashtra | 35 |
| Madhya Pradesh | 50 |
| Gujarat | 33 |
| Sikkim | 4 |
| Chandigarh | 1 |
| Bihar | 38 |
| Daman and Diu | 2 |
| State | 1 |
| Dadra and Nagar Haveli | 1 |
| Tripura | 8 |
| Andhra Pradesh | 13 |
| Odisha | 30 |
| Haryana | 21 |
| Arunachal Pradesh | 18 |
| Others | 1 |
| Manipur | 9 |
| Uttarakhand | 13 |
| Andaman and Nicobar Islands | 3 |
| Puducherry | 2 |
| Tamil Nadu | 32 |
| West Bengal | 19 |
| Jammu and Kashmir | 22 |
| Telangana | 10 |
| Goa | 2 |
| Karnataka | 31 |
| Uttar Pradesh | 75 |
| Kerala | 14 |
| Nagaland | 11 |
| Meghalaya | 8 |
| Delhi | 9 |
| Lakshadweep | 1 |
| Chhattisgarh | 30 |
| Rajasthan | 33 |
| Punjab | 22 |
| Jharkhand | 24 |
| Assam | 28 |
| Himachal Pradesh | 12 |
| Mizoram | 8 |

**%sql**

**select state, district, count(distinct(Sub\_District)) from aadhaar\_DD1610216 group by state,district**

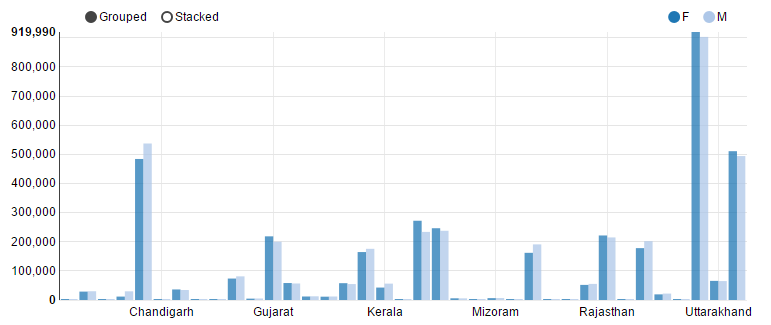
|  |  |  |
| --- | --- | --- |
| Madhya Pradesh | Sheopur | 3 |
| Gujarat | Sabarkantha | 8 |
| Madhya Pradesh | Rewa | 7 |
| Odisha | Balangir | 12 |
| Bihar | Madhepura | 13 |
| Goa | North Goa | 6 |
| Arunachal Pradesh | Kurung Kumey | 8 |
| Tamil Nadu | Cuddalore | 9 |
| Jharkhand | Lohardaga | 5 |
| Punjab | Sri Muktsar Sahib | 4 |
| Rajasthan | Dausa | 5 |
| Kerala | Kozhikode | 5 |
| Delhi | Central Delhi | 3 |
| Jammu and Kashmir | Srinagar | 2 |
| Chhattisgarh | Narayanpur | 1 |
| Uttar Pradesh | Moradabad | 3 |
| Jammu and Kashmir | Samba | 1 |
| Karnataka | Dharwad | 5 |
| Chhattisgarh | Koriya | 6 |
| Gujarat | Rajkot | 12 |
| Tamil Nadu | Kanniyakumari | 4 |
| Telangana | Karimnagar | 58 |
| Bihar | Patna | 25 |
| Gujarat | Kachchh | 10 |
| Rajasthan | Churu | 6 |
| Rajasthan | Kota | 5 |
| Uttar Pradesh | Unnao | 5 |
| Lakshadweep | Lakshadweep | 5 |
| Gujarat | Bhavnagar | 10 |
| Karnataka | Hassan | 11 |
| Madhya Pradesh | Barwani | 6 |
| Madhya Pradesh | Betul | 5 |
| Delhi | South West Delhi | 7 |
| Madhya Pradesh | Gwalior | 4 |
| Odisha | Bargarh | 15 |
| Jharkhand | Ramgarh | 6 |
| Mizoram | Mamit | 3 |
| State | District | 1 |
| Uttar Pradesh | Firozabad | 4 |
| Uttar Pradesh | Deoria | 5 |
| Chhattisgarh | Dakshin Bastar Dantewada | 4 |
| Bihar | Gaya | 26 |
| Uttar Pradesh | Jalaun | 5 |
| Gujarat | The Dangs | 4 |
| Karnataka | Raichur | 6 |
| Mizoram | Aizawl | 5 |
| Uttar Pradesh | Siddharthnagar | 5 |
| Arunachal Pradesh | Upper Subansiri | 12 |
| Nagaland | Mokokchung | 8 |
| Nagaland | Peren | 6 |
| Arunachal Pradesh | Longding | 4 |
| Uttar Pradesh | Basti | 4 |
| Uttarakhand | Haridwar | 4 |
| Andaman and Nicobar Islands | Nicobar | 2 |
| Punjab | Moga | 4 |
| Meghalaya | Ri Bhoi | 2 |
| Jammu and Kashmir | Ramban | 2 |
| Uttar Pradesh | Shahjahanpur | 4 |
| Uttar Pradesh | Sultanpur | 3 |
| Meghalaya | East Garo Hills | 4 |
| Tamil Nadu | Thiruvarur | 7 |
| Uttarakhand | Uttarkashi | 4 |
| Chhattisgarh | Mahasamund | 5 |
| Madhya Pradesh | Rajgarh | 7 |
| Maharashtra | Beed | 11 |
| Uttar Pradesh | Etah | 3 |
| Chhattisgarh | Surguja | 6 |
| Jharkhand | Deoghar | 8 |
| Sikkim | West Sikkim | 2 |
| Punjab | Gurdaspur | 4 |
| Rajasthan | Hanumangarh | 7 |
| Chhattisgarh | Dhamtari | 4 |
| Uttarakhand | Bageshwar | 4 |
| Jharkhand | Simdega | 7 |
| Meghalaya | South West Khasi Hills | 1 |
| Karnataka | Bangalore | 1 |
| Madhya Pradesh | Chhindwara | 9 |
| Uttar Pradesh | Ghaziabad | 2 |
| Delhi | North East Delhi | 3 |
| Meghalaya | Jaintia Hills | 4 |
| Odisha | Kendrapara | 8 |
| Himachal Pradesh | Kangra | 33 |
| Tripura | Dhalai | 6 |
| Punjab | SAS Nagar (Mohali) | 5 |
| Assam | Barpeta | 7 |
| Karnataka | Tumakuru | 12 |
| Assam | Kokrajhar | 4 |
| Arunachal Pradesh | Dibang Valley | 4 |
| Others | Others | 1 |
| Mizoram | Lunglei | 4 |
| Gujarat | Valsad | 7 |
| Madhya Pradesh | Shajapur | 8 |
| Uttar Pradesh | Bahraich | 5 |
| Karnataka | Bidar | 5 |
| Bihar | Bhagalpur | 17 |
| Madhya Pradesh | Ratlam | 6 |
| Karnataka | Yadgir | 4 |
| Uttar Pradesh | Rampur | 5 |
| Delhi | New Delhi | 2 |
| Bihar | Lakhisarai | 6 |
| Assam | Jorhat | 6 |
| Jharkhand | Jamtara | 4 |
| Uttar Pradesh | Farrukhabad | 3 |
| Odisha | Nuapada | 5 |
| Madhya Pradesh | Burhanpur | 3 |
| Punjab | Pathankot | 2 |
| Rajasthan | Karauli | 6 |
| Karnataka | Kalaburagi | 11 |
| Uttarakhand | Champawat | 2 |
| Uttar Pradesh | Lalitpur | 3 |
| Meghalaya | East Khasi Hills | 8 |
| Kerala | Malappuram | 7 |
| Bihar | Nalanda | 21 |
| Assam | Chirang | 3 |
| Odisha | Ganjam | 22 |
| Nagaland | Mon | 14 |
| Odisha | Koraput | 20 |
| Gujarat | Banaskantha | 13 |
| Tripura | Gomati | 5 |
| Uttar Pradesh | Sant Ravidas Nagar | 2 |
| Puducherry | Puducherry | 11 |
| Arunachal Pradesh | East Kameng | 10 |
| Gujarat | Junagadh | 11 |
| Maharashtra | Nandurbar | 6 |
| Andaman and Nicobar Islands | North And Middle Andaman | 5 |
| Madhya Pradesh | Jhabua | 5 |
| West Bengal | North 24 Parganas | 47 |
| Jharkhand | Godda | 8 |
| Uttar Pradesh | Pilibhit | 3 |
| Arunachal Pradesh | West Siang | 16 |
| Odisha | Sambalpur | 17 |
| Tamil Nadu | Tiruchirappalli | 9 |
| Chhattisgarh | Bemetara | 5 |
| Chhattisgarh | Mungeli | 3 |
| Madhya Pradesh | Seoni | 6 |
| Maharashtra | Nanded | 16 |
| Assam | Hojai | 2 |
| Jammu and Kashmir | Pulwama | 4 |
| Jammu and Kashmir | Baramula | 9 |
| Delhi | South Delhi | 5 |
| Nagaland | Tuensang | 13 |
| Mizoram | Saiha | 2 |
| Manipur | Imphal West | 5 |
| Haryana | Mewat | 4 |
| Uttar Pradesh | Bulandshahr | 7 |
| Tamil Nadu | Karur | 5 |
| Uttar Pradesh | Mau | 4 |
| Jammu and Kashmir | Ganderbal | 3 |
| Odisha | Khorda | 19 |
| Gujarat | Surendra Nagar | 11 |
| Daman and Diu | Daman | 1 |
| Madhya Pradesh | Sidhi | 6 |
| Manipur | Tamenglong | 4 |
| Uttar Pradesh | Fatehpur | 3 |
| Haryana | Karnal | 5 |
| Karnataka | Haveri | 10 |
| Punjab | Jalandhar | 6 |
| Jharkhand | Khunti | 8 |
| Jammu and Kashmir | Anantnag | 6 |
| Jammu and Kashmir | Reasi | 2 |
| Kerala | Alappuzha | 6 |
| Odisha | Bhadrak | 12 |
| Madhya Pradesh | Morena | 6 |
| Himachal Pradesh | Chamba | 17 |
| Odisha | Jagatsinghapur | 7 |
| Uttar Pradesh | Saharanpur | 4 |
| Bihar | Banka | 10 |
| Rajasthan | Ajmer | 9 |
| Delhi | East Delhi | 5 |
| Assam | Marigaon | 5 |
| Chhattisgarh | Korba | 5 |
| Rajasthan | Barmer | 8 |
| Maharashtra | Jalgaon | 16 |
| Madhya Pradesh | Shahdol | 4 |
| Bihar | Jehanabad | 8 |
| Manipur | Churachandpur | 5 |
| Uttar Pradesh | Sitapur | 6 |
| Haryana | Gurgaon | 8 |
| Maharashtra | Wardha | 8 |
| Himachal Pradesh | Solan | 14 |
| Gujarat | Porbandar | 3 |
| Uttar Pradesh | Chitrakoot | 2 |
| Haryana | Rohtak | 2 |
| Uttar Pradesh | Hamirpur | 2 |
| Kerala | Thrissur | 16 |
| Chhattisgarh | Gariyaband | 7 |
| Bihar | Saran | 21 |
| Karnataka | Ballari | 8 |
| Assam | Tinsukia | 4 |
| Haryana | Panipat | 3 |
| Madhya Pradesh | Shivpuri | 7 |
| Sikkim | North Sikkim | 2 |
| Uttarakhand | Dehradun | 5 |
| Rajasthan | Udaipur | 11 |
| Karnataka | Chikkaballapur | 10 |
| Odisha | Debagarh | 5 |
| Uttar Pradesh | Pratapgarh | 4 |
| Bihar | Bhojpur | 16 |
| Maharashtra | Satara | 11 |
| Karnataka | Chitradurga | 6 |
| Kerala | Thiruvananthapuram | 4 |
| Uttar Pradesh | Mainpuri | 3 |
| Jammu and Kashmir | Punch | 4 |
| Uttar Pradesh | Sant Kabir Nagar | 3 |
| Chhattisgarh | Kawardha | 2 |
| Arunachal Pradesh | Changlang | 12 |
| Jammu and Kashmir | Leh | 1 |
| Jammu and Kashmir | Shupiyan | 1 |
| Tamil Nadu | Tirunelveli | 13 |
| Maharashtra | Kolhapur | 12 |
| West Bengal | South 24 Parganas | 46 |
| Uttar Pradesh | Gorakhpur | 8 |
| Arunachal Pradesh | Tirap | 4 |
| Telangana | Khammam | 46 |
| Manipur | Thoubal | 4 |
| Jammu and Kashmir | Kishtwar | 4 |
| Assam | Dibrugarh | 11 |
| Jharkhand | Seraikela-Kharsawan | 8 |
| Rajasthan | Bhilwara | 12 |
| Kerala | Kollam | 5 |
| Himachal Pradesh | Mandi | 31 |
| Chhattisgarh | Kanker | 6 |
| Himachal Pradesh | Kinnaur | 12 |
| Chhattisgarh | Raigarh | 9 |
| Tamil Nadu | Sivaganga | 7 |
| Haryana | Fatehabad | 3 |
| Rajasthan | Pali | 9 |
| Haryana | Sirsa | 4 |
| Jharkhand | West Singhbhum | 17 |
| Andhra Pradesh | Prakasam | 56 |
| Chhattisgarh | Uttar Bastar Kanker | 7 |
| Odisha | Nayagarh | 9 |
| Chhattisgarh | Raipur | 6 |
| Gujarat | Narmada | 5 |
| Jammu and Kashmir | Kathua | 5 |
| West Bengal | Purba Medinipur | 50 |
| Bihar | Kaimur (Bhabua) | 11 |
| Andhra Pradesh | Ananthapuramu | 63 |
| Bihar | Munger | 9 |
| Tamil Nadu | Krishnagiri | 5 |
| Uttar Pradesh | Chandauli | 3 |
| Manipur | Senapati | 6 |
| Punjab | Shaheed Bhagat Singh Nagar | 3 |
| Uttar Pradesh | Bareilly | 6 |
| Haryana | Jind | 5 |
| Maharashtra | Bhandara | 7 |
| Delhi | North West Delhi | 6 |
| Madhya Pradesh | Satna | 8 |
| Odisha | Kandhamal | 17 |
| Maharashtra | Gondiya | 8 |
| Assam | Goalpara | 5 |
| Bihar | Sitamarhi | 17 |
| Tamil Nadu | Coimbatore | 12 |
| Jammu and Kashmir | Jammu | 4 |
| Uttar Pradesh | Kaushambi | 3 |
| Uttar Pradesh | Sambhal | 3 |
| Tamil Nadu | Chennai | 1 |
| Assam | Karimganj | 5 |
| Odisha | Puri | 16 |
| Rajasthan | Jhalawar | 7 |
| Punjab | Amritsar | 4 |
| Jharkhand | Bokaro | 12 |
| Maharashtra | Mumbai | 18 |
| Nagaland | Phek | 10 |
| Tamil Nadu | Perambalur | 4 |
| Nagaland | Zunheboto | 11 |
| Jharkhand | Gumla | 12 |
| Madhya Pradesh | Chhatarpur | 8 |
| Gujarat | Mahesana | 10 |
| Mizoram | Champhai | 6 |
| Arunachal Pradesh | Lohit | 2 |
| Nagaland | Kohima | 10 |
| Rajasthan | Sawai Madhopur | 7 |
| Haryana | Kurukshetra | 3 |
| Uttar Pradesh | Ambedkar Nagar | 4 |
| Uttar Pradesh | Agra | 6 |
| Bihar | Supaul | 11 |
| Jammu and Kashmir | Bandipore | 3 |
| Arunachal Pradesh | Tawang | 6 |
| Karnataka | Chamrajanagar | 4 |
| Uttar Pradesh | Ballia | 6 |
| Nagaland | Kiphire | 3 |
| Andhra Pradesh | Kurnool | 54 |
| Jharkhand | Dumka | 10 |
| Uttar Pradesh | Shrawasti | 3 |
| Tamil Nadu | Virudhunagar | 8 |
| Karnataka | Chikkamagaluru | 8 |
| West Bengal | Howrah | 28 |
| Uttar Pradesh | Mathura | 3 |
| Maharashtra | Osmanabad | 8 |
| Madhya Pradesh | Jabalpur | 4 |
| Gujarat | Arvalli | 6 |
| West Bengal | Darjeeling | 14 |
| Rajasthan | Banswara | 4 |
| Madhya Pradesh | Neemuch | 3 |
| Maharashtra | Latur | 11 |
| Manipur | Ukhrul | 5 |
| Bihar | Vaishali | 16 |
| Arunachal Pradesh | East Siang | 10 |
| Arunachal Pradesh | Lower Subansiri | 6 |
| Uttar Pradesh | Kanpur Dehat | 5 |
| Manipur | Bishnupur | 3 |
| West Bengal | Birbhum | 26 |
| Tamil Nadu | The Nilgiris | 6 |
| Kerala | Idukki | 4 |
| Karnataka | Gadag | 5 |
| Gujarat | Botad | 4 |
| Jharkhand | Latehar | 7 |
| Assam | Udalguri | 8 |
| Tamil Nadu | Ariyalur | 3 |
| Madhya Pradesh | Mandsaur | 5 |
| Andhra Pradesh | Chittoor | 67 |
| Tamil Nadu | Tiruvannamalai | 8 |
| Assam | Dhubri | 8 |
| Karnataka | Koppal | 6 |
| Uttar Pradesh | Hapur | 3 |
| Bihar | Aurangabad | 11 |
| Tamil Nadu | Madurai | 7 |
| Telangana | Adilabad | 51 |
| Tripura | Sepahijala | 5 |
| Madhya Pradesh | Tikamgarh | 6 |
| Kerala | Kannur | 3 |
| Gujarat | Panchmahals | 7 |
| Chhattisgarh | Balrampur | 6 |
| Uttar Pradesh | Azamgarh | 7 |
| West Bengal | Puruliya | 22 |
| Rajasthan | Jhunjhunun | 6 |
| Bihar | Muzaffarpur | 18 |
| Bihar | Khagaria | 7 |
| Maharashtra | Sangli | 10 |
| Odisha | Sonapur | 7 |
| Tamil Nadu | Dindigul | 9 |
| Uttar Pradesh | Faizabad | 5 |
| Delhi | West Delhi | 5 |
| Uttar Pradesh | Baghpat | 3 |
| Odisha | Nabarangapur | 12 |
| Madhya Pradesh | Datia | 3 |
| Maharashtra | Ratnagiri | 9 |
| Tamil Nadu | Namakkal | 5 |
| Meghalaya | West Garo Hills | 9 |
| Andhra Pradesh | Srikakulam | 39 |
| Assam | Sonitpur | 7 |
| Uttar Pradesh | Banda | 4 |
| Jharkhand | Sahebganj | 10 |
| Himachal Pradesh | Shimla | 34 |
| Haryana | Mahendragarh | 2 |
| Assam | Golaghat | 5 |
| Assam | North Cachar Hills | 4 |
| Jammu and Kashmir | Budgam | 7 |
| Gujarat | Devbhumi Dwarka | 4 |
| Uttar Pradesh | Varanasi | 2 |
| Haryana | Palwal | 3 |
| Mizoram | Serchhip | 3 |
| Andhra Pradesh | Guntur | 58 |
| Tamil Nadu | Dharmapuri | 10 |
| Uttarakhand | Chamoli | 6 |
| Bihar | Nawada | 15 |
| Maharashtra | Thane | 22 |
| Madhya Pradesh | Umaria | 1 |
| Chandigarh | Chandigarh | 1 |
| Madhya Pradesh | Singrauli | 3 |
| Assam | Cachar | 7 |
| West Bengal | Bankura | 25 |
| Gujarat | Gir Somnath | 6 |
| Assam | Nalbari | 7 |
| Himachal Pradesh | Sirmaur | 19 |
| Odisha | Kalahandi | 15 |
| Madhya Pradesh | Harda | 3 |
| Karnataka | Bagalkot | 8 |
| Jharkhand | Giridih | 13 |
| Assam | Sibsagar | 6 |
| West Bengal | Jalpaiguri | 14 |
| Assam | Kamrup Metro | 5 |
| Karnataka | Vijayapura | 5 |
| Tamil Nadu | Thanjavur | 8 |
| Bihar | Kishanganj | 7 |
| Punjab | Ferozepur | 3 |
| Karnataka | Bangalore Rural | 4 |
| Maharashtra | Yavatmal | 16 |
| Kerala | Palakkad | 5 |
| Arunachal Pradesh | Papum Pare | 12 |
| Uttar Pradesh | Gautam Buddha Nagar | 4 |
| Assam | Hailakandi | 4 |
| Uttarakhand | Rudraprayag | 2 |
| Uttar Pradesh | Maharajganj | 4 |
| Haryana | Bhiwani | 6 |
| Karnataka | Shivamogga | 9 |
| Madhya Pradesh | Katni | 4 |
| Tripura | Unakoti | 4 |
| Punjab | Patiala | 5 |
| Uttar Pradesh | Jaunpur | 6 |
| Uttar Pradesh | Muzaffarnagar | 4 |
| Andhra Pradesh | East Godavari | 62 |
| Uttar Pradesh | Amethi | 4 |
| West Bengal | Dakshin Dinajpur | 8 |
| West Bengal | Cooch Behar | 16 |
| West Bengal | Hooghly | 22 |
| Odisha | Kendujhar | 23 |
| Uttar Pradesh | Ghazipur | 5 |
| Jharkhand | Chatra | 10 |
| Rajasthan | Dungarpur | 4 |
| Maharashtra | Chandrapur | 15 |
| Haryana | Sonipat | 5 |
| Haryana | Faridabad | 5 |
| Chhattisgarh | Durg | 6 |
| Andaman and Nicobar Islands | South Andaman | 2 |
| Rajasthan | Alwar | 12 |
| Bihar | Gopalganj | 16 |
| Rajasthan | Jaipur | 14 |
| Madhya Pradesh | Dewas | 6 |
| Goa | South Goa | 8 |
| Tripura | West Tripura | 7 |
| Arunachal Pradesh | West Kameng | 6 |
| Rajasthan | Bikaner | 8 |
| Rajasthan | Pratapgarh | 5 |
| Gujarat | Kheda | 11 |
| Bihar | Purnia | 17 |
| Karnataka | Mysuru | 9 |
| Jharkhand | Pakur | 7 |
| Nagaland | Wokha | 10 |
| Uttar Pradesh | Kheri | 5 |
| Karnataka | Mandya | 8 |
| Andhra Pradesh | Vizianagaram | 34 |
| Bihar | Rohtas | 18 |
| Arunachal Pradesh | Lower Dibang Valley | 3 |
| Uttar Pradesh | Kannauj | 3 |
| Gujarat | Patan | 8 |
| Bihar | Madhubani | 22 |
| Punjab | Tarn Taran | 5 |
| Odisha | Sundergarh | 29 |
| Gujarat | Anand | 8 |
| Chhattisgarh | Kondagaon | 6 |
| Tamil Nadu | Vellore | 11 |
| Tripura | Khowai | 5 |
| Maharashtra | Jalna | 8 |
| Rajasthan | Nagaur | 9 |
| Maharashtra | Buldhana | 15 |
| Odisha | Gajapati | 10 |
| Chhattisgarh | Jashpur | 8 |
| Bihar | Arwal | 5 |
| Maharashtra | Raigarh | 16 |
| Maharashtra | Dhule | 4 |
| Chhattisgarh | Balod | 5 |
| Andhra Pradesh | Krishna | 50 |
| Uttar Pradesh | Aligarh | 5 |
| Uttar Pradesh | Auraiya | 2 |
| Haryana | Panchkula | 3 |
| Bihar | East Champaran | 30 |
| Telangana | Mahabubnagar | 64 |
| Rajasthan | Baran | 8 |
| Telangana | Medak | 46 |
| West Bengal | Uttar Dinajpur | 10 |
| Maharashtra | Washim | 6 |
| Tamil Nadu | Villupuram | 9 |
| Uttarakhand | Pauri Garhwal | 6 |
| Gujarat | Tapi | 5 |
| Karnataka | Belagavi | 12 |
| Sikkim | East Sikkim | 4 |
| Gujarat | Chhotaudepur | 6 |
| Kerala | Kottayam | 5 |
| Rajasthan | Dholpur | 5 |
| Gujarat | Bharuch | 8 |
| Sikkim | South Sikkim | 3 |
| Jharkhand | Dhanbad | 10 |
| Himachal Pradesh | Una | 10 |
| Maharashtra | Aurangabad | 9 |
| Uttar Pradesh | Kushinagar | 4 |
| Gujarat | Gandhinagar | 4 |
| Madhya Pradesh | Hoshangabad | 7 |
| Delhi | North Delhi | 4 |
| Tamil Nadu | Tiruppur | 7 |
| Chhattisgarh | Janjgir-champa | 10 |
| Bihar | Sheikhpura | 6 |
| Madhya Pradesh | Ujjain | 8 |
| Gujarat | Morbi | 5 |
| Maharashtra | Palghar | 8 |
| Assam | Nagaon | 12 |
| Chhattisgarh | Rajnandgaon | 10 |
| Jharkhand | Palamu | 13 |
| Rajasthan | Ganganagar | 9 |
| Bihar | West Champaran | 18 |
| West Bengal | Paschim Medinipur | 64 |
| Odisha | Jharsuguda | 10 |
| Bihar | Katihar | 16 |
| Gujarat | Navsari | 6 |
| Odisha | Mayurbhanj | 29 |
| Tamil Nadu | Erode | 8 |
| Madhya Pradesh | Ashok Nagar | 4 |
| Assam | Karbi Anglong | 4 |
| Arunachal Pradesh | Upper Siang | 5 |
| Madhya Pradesh | Dhar | 7 |
| Uttarakhand | Nainital | 5 |
| Odisha | Angul | 20 |
| Tamil Nadu | Ramanathapuram | 7 |
| Madhya Pradesh | Panna | 5 |
| Jharkhand | Garhwa | 16 |
| Kerala | Pathanamthitta | 6 |
| Uttar Pradesh | Bara Banki | 6 |
| Uttar Pradesh | Lucknow | 5 |
| Rajasthan | Chittorgarh | 11 |
| Madhya Pradesh | Balaghat | 6 |
| Tamil Nadu | Salem | 9 |
| Maharashtra | Nagpur | 15 |
| Nagaland | Dimapur | 7 |
| Kerala | Ernakulam | 9 |
| Madhya Pradesh | Dindori | 2 |
| Uttar Pradesh | Hardoi | 5 |
| Gujarat | Amreli | 11 |
| Haryana | Kaithal | 2 |
| Assam | Darrang | 4 |
| Haryana | Yamuna Nagar | 2 |
| Maharashtra | Amravati | 14 |
| Madhya Pradesh | Bhopal | 2 |
| Maharashtra | Pune | 15 |
| Jharkhand | Hazaribagh | 12 |
| Maharashtra | Ahmadnagar | 14 |
| Rajasthan | Tonk | 7 |
| Karnataka | Davangere | 7 |
| Rajasthan | Bharatpur | 10 |
| Karnataka | Kolar | 8 |
| Tamil Nadu | Theni | 5 |
| Karnataka | Bengaluru | 4 |
| Uttar Pradesh | Mahoba | 3 |
| Assam | Baksa | 4 |
| Bihar | Darbhanga | 18 |
| Gujarat | Mahisagar | 6 |
| Odisha | Malkangiri | 10 |
| Andhra Pradesh | Visakhapatnam | 43 |
| Andhra Pradesh | Cuddapah | 51 |
| Assam | Dhemaji | 5 |
| Uttar Pradesh | Meerut | 3 |
| Jharkhand | East Singhbhum | 14 |
| Haryana | Hisar | 4 |
| Tripura | South Tripura | 7 |
| Meghalaya | South Garo Hills | 2 |
| Jharkhand | Koderma | 7 |
| Chhattisgarh | Surajpur | 6 |
| Madhya Pradesh | Anuppur | 4 |
| Assam | Kamrup | 12 |
| Gujarat | Ahmedabad | 10 |
| Gujarat | Jamnagar | 7 |
| Chhattisgarh | Bijapur | 4 |
| Punjab | Kapurthala | 4 |
| Uttar Pradesh | Mirzapur | 4 |
| Madhya Pradesh | Khargone | 8 |
| West Bengal | Kolkata | 9 |
| Andhra Pradesh | West Godavari | 49 |
| Bihar | Samastipur | 22 |
| Uttar Pradesh | Allahabad | 8 |
| Punjab | Fatehgarh Sahib | 4 |
| Manipur | Imphal East | 4 |
| Punjab | Fazilka | 3 |
| Tamil Nadu | Kancheepuram | 18 |
| Karnataka | Dakshina Kannada | 9 |
| West Bengal | Murshidabad | 32 |
| Dadra and Nagar Haveli | Dadra and Nagar Haveli | 3 |
| Maharashtra | Solapur | 11 |
| Arunachal Pradesh | Namsai | 5 |
| Uttar Pradesh | Shamli | 2 |
| West Bengal | Barddhaman | 42 |
| Tamil Nadu | Pudukkottai | 11 |
| Gujarat | Dahod | 7 |
| Tamil Nadu | Nagapattinam | 8 |
| Jammu and Kashmir | Kargil | 3 |
| Rajasthan | Rajsamand | 7 |
| Odisha | Baleswar | 17 |
| Uttar Pradesh | Sonbhadra | 3 |
| Karnataka | Udupi | 4 |
| Odisha | Jajapur | 10 |
| Chhattisgarh | Bilaspur | 7 |
| Jammu and Kashmir | Udhampur | 4 |
| Assam | Bongaigaon | 3 |
| Bihar | Saharsa | 11 |
| Maharashtra | Sindhudurg | 8 |
| Uttarakhand | Tehri Garhwal | 5 |
| Chhattisgarh | Dantewada | 1 |
| Maharashtra | Akola | 7 |
| Madhya Pradesh | Mandla | 4 |
| Madhya Pradesh | Damoh | 7 |
| Karnataka | Ramanagar | 4 |
| Punjab | Faridkot | 3 |
| Telangana | Nalgonda | 59 |
| Telangana | Hyderabad | 17 |
| Uttar Pradesh | Etawah | 5 |
| Rajasthan | Jalor | 7 |
| Himachal Pradesh | Lahul and Spiti | 5 |
| Maharashtra | Nashik | 15 |
| Uttarakhand | Udham Singh Nagar | 5 |
| Haryana | Ambala | 3 |
| Chhattisgarh | Baloda Bazar | 6 |
| Tripura | North Tripura | 6 |
| Jammu and Kashmir | Kupwara | 3 |
| Haryana | Jhajjar | 4 |
| Maharashtra | Gadchiroli | 12 |
| Tamil Nadu | Tiruvallur | 12 |
| Odisha | Cuttack | 20 |
| Puducherry | Karaikal | 7 |
| West Bengal | Nadia | 23 |
| Maharashtra | Parbhani | 9 |
| Madhya Pradesh | Sehore | 5 |
| Odisha | Rayagada | 14 |
| Chhattisgarh | Kabeerdham | 4 |
| Jammu and Kashmir | Doda | 4 |
| Haryana | Rewari | 4 |
| Nagaland | Longleng | 2 |
| Uttar Pradesh | Kasganj | 2 |
| Madhya Pradesh | Alirajpur | 2 |
| Uttar Pradesh | Kanpur Nagar | 4 |
| Gujarat | Vadodara | 8 |
| Bihar | Jamui | 9 |
| Rajasthan | Jaisalmer | 3 |
| Punjab | Hoshiarpur | 5 |
| Odisha | Boudh | 7 |
| Jharkhand | Ranchi | 17 |
| Himachal Pradesh | Hamirpur | 13 |
| Meghalaya | West Khasi Hills | 4 |
| Punjab | Barnala | 2 |
| Madhya Pradesh | Khandwa | 3 |
| Himachal Pradesh | Kullu | 13 |
| Karnataka | Uttara Kannada | 13 |
| Kerala | Wayanad | 4 |
| Madhya Pradesh | Raisen | 8 |
| Chhattisgarh | Sukma | 3 |
| Telangana | Warangal | 52 |
| Odisha | Dhenkanal | 11 |
| Uttar Pradesh | Gonda | 4 |
| Uttar Pradesh | Rae Bareli | 6 |
| Uttar Pradesh | Jhansi | 5 |
| Punjab | Bathinda | 3 |
| Telangana | K.v. Rangareddy | 38 |
| Uttar Pradesh | Amroha | 3 |
| Karnataka | Kodagu | 4 |
| Punjab | Sangrur | 7 |
| Bihar | Sheohar | 4 |
| Himachal Pradesh | Bilaspur | 10 |
| Madhya Pradesh | Bhind | 7 |
| Daman and Diu | Diu | 1 |
| West Bengal | Malda | 21 |
| Chhattisgarh | Bastar | 6 |
| Uttar Pradesh | Hathras | 4 |
| Tamil Nadu | Thoothukkudi | 9 |
| Punjab | Ludhiana | 11 |
| Bihar | Araria | 9 |
| Manipur | Chandel | 4 |
| Madhya Pradesh | Vidisha | 8 |
| Telangana | Nizamabad | 37 |
| Bihar | Buxar | 12 |
| Bihar | Siwan | 20 |
| Madhya Pradesh | Indore | 4 |
| Assam | Lakhimpur | 7 |
| Kerala | Kasaragod | 2 |
| Uttarakhand | Almora | 9 |
| Uttar Pradesh | Budaun | 5 |
| Rajasthan | Jodhpur | 7 |
| Jammu and Kashmir | Kulgam | 2 |
| Gujarat | Surat | 10 |
| Uttar Pradesh | Balrampur | 3 |
| Maharashtra | Hingoli | 5 |
| Uttarakhand | Pithoragarh | 6 |
| Mizoram | Kolasib | 3 |
| Rajasthan | Sirohi | 5 |
| Rajasthan | Sikar | 6 |
| Mizoram | Lawngtlai | 3 |
| Punjab | Mansa | 3 |
| Bihar | Begusarai | 18 |
| Madhya Pradesh | Sagar | 9 |
| Madhya Pradesh | Guna | 9 |
| Andhra Pradesh | Nellore | 46 |
| Rajasthan | Bundi | 5 |
| Madhya Pradesh | Narsinghpur | 5 |
| Punjab | Rupnagar | 5 |
| Uttar Pradesh | Bijnor | 6 |
| Arunachal Pradesh | Siang | 8 |
| Jammu and Kashmir | Rajouri | 7 |

1. Find the number of males and females in each state from the table and display a suitable plot. (300 Marks)

**#Write your query, comments here.**

**%sql**

**select state, gender, count(\*) from aadhaar\_DD1610216 where gender in ("M", "F") group by state,gender order by state**

****

1. Find out the names of private agencies for each state. (200 Marks)

**#Write your query, comments here.**

**%sql**

**select state, count(distinct(Enrolment\_Agency)) from aadhaar\_DD1610216 group by state**

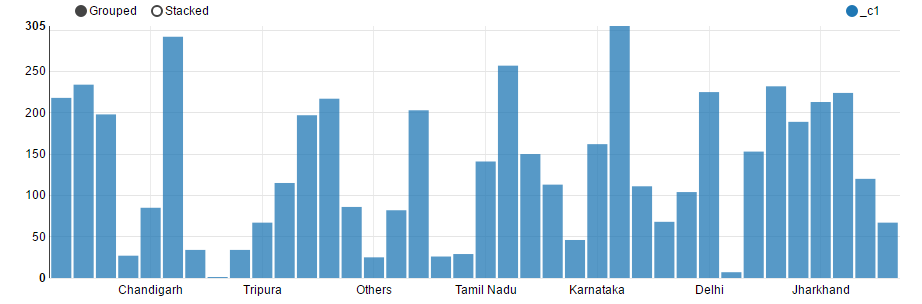
|  |  |
| --- | --- |
| Maharashtra | 218 |
| Madhya Pradesh | 234 |
| Gujarat | 198 |
| Sikkim | 27 |
| Chandigarh | 85 |
| Bihar | 292 |
| Daman and Diu | 34 |
| State | 1 |
| Dadra and Nagar Haveli | 34 |
| Tripura | 67 |
| Andhra Pradesh | 115 |
| Odisha | 197 |
| Haryana | 217 |
| Arunachal Pradesh | 86 |
| Others | 25 |
| Manipur | 82 |
| Uttarakhand | 203 |
| Andaman and Nicobar Islands | 26 |
| Puducherry | 29 |
| Tamil Nadu | 141 |
| West Bengal | 257 |
| Jammu and Kashmir | 150 |
| Telangana | 113 |
| Goa | 46 |
| Karnataka | 162 |
| Uttar Pradesh | 305 |
| Kerala | 111 |
| Nagaland | 68 |
| Meghalaya | 104 |
| Delhi | 225 |
| Lakshadweep | 7 |
| Chhattisgarh | 153 |
| Rajasthan | 232 |
| Punjab | 189 |
| Jharkhand | 213 |
| Assam | 224 |
| Himachal Pradesh | 120 |
| Mizoram | 67 |

1. Plot the number of private agencies for each state. (200 Marks)

**#Write your query, comments here.**

**%sql**

**select state, count(distinct(Enrolment\_Agency)) from aadhaar\_DD1610216 group by state**

****

Checkpoint 3: Hive Skills (1000 Marks)

**Hint: If needed create the Managed Tables/External Tables.**

1. Find top 3 states generating most number of Aadhaar cards? (200 Marks)

**#Write your query, comments here.**

Below query will aggregate aadhaar generated and group by state then arrange in descending and show top 3.

select sum(aadhaar\_dda1610049.aadhaar\_generated) as c, aadhaar\_dda1610049.state from DDA1610049.aadhaar\_DDA1610049 group by aadhaar\_dda1610049.state ORDER BY c DESC LIMIT 3

1. Find top 3 private agencies generating the most number of Aadhar cards? (200 Marks)

**#Write your query, comments here.**

Below query will aggregate aadhaar generated and group by private agency then arrange in descending and show top 3.

select sum(aadhaar\_dda1610049.aadhaar\_generated) as c, aadhaar\_dda1610049.private\_agency from DDA1610049.aadhaar\_DDA1610049 group by aadhaar\_dda1610049.private\_agency ORDER BY c DESC LIMIT 3

1. Find the number of residents providing email, mobile number? **(Hint: consider non-zero values.)** (200 Marks)

**#Write your query, comments here.**

Use where clause to query only on non-zero values. I have written 2 queries, one for number of people giving mobile number, one for number of people giving email.

select sum(aadhaar\_dda1610049.email\_id) from DDA1610049.aadhaar\_DDA1610049 where aadhaar\_dda1610049.email\_id != 0

select sum(aadhaar\_dda1610049.mobile\_number) from DDA1610049.aadhaar\_DDA1610049 where aadhaar\_dda1610049.mobile\_number != 0

1. Find top 3 districts where enrolment numbers are maximum? (200 Marks)

**#Write your query, comments here.**

To calculate enrolment we have to consider both aadhaar generated and rejected

select sum(aadhaar\_dda1610049.aadhaar\_generated + aadhaar\_dda1610049.rejected) as c, aadhaar\_dda1610049.district from DDA1610049.aadhaar\_DDA1610049 group by aadhaar\_dda1610049.district order by c desc limit 3

1. Find the no. of Aadhaar cards generated in each state? (200 Marks)

**#Write your query, comments here.**

select sum(aadhaar\_dda1610049.aadhaar\_generated) as c, aadhaar\_dda1610049.state from DDA1610049.aadhaar\_DDA1610049 group by aadhaar\_dda1610049.state ORDER BY c DESC