**Report**

Our DBMS contains the following relations:

1. **Admin:** It has the Admin\_Id, username and passwords for all the admins. Admin\_Id is the primary key of the relation. All 3 of the attributes in this relation have the constraint Not Null, because all 3 attributes are necessary. Furthermore, username also has a constraint of unique because 2 admins cannot have the same username.
2. **Candidate:** It has the attributes Candidate\_Id, Cd\_CNIC, Party\_id, Election\_id and symbol. Cd\_CNIC references voter\_CNIC from the voter relation and Election\_id references Election\_id from the Election table, On Update both these attributes are cascaded because we want to update the changes in all tables where it is referenced and the delete operation is restricted for both of them, since it is not possible to delete an Election\_id and does not make any sense to delete CNIC of a voter. Candidate\_Id, Cd\_CNIC and Election\_id have the constraint of Not Null because they are all necessary information for our relation. Party\_id can be NULL because there can be some independent candidates that do not belong to any party.

1. **Constituency:** It contains the constituency code (C\_Code) and the district to which the constituency belongs. C\_Code is the primary key for the relation and the District also has the constraint of Not Null, as it is a necessary field. District references the attribute District in the Province table. On Update it is cascaded, as we want it to be updated in this table too, and the delete operation is restricted for district as districts cannot be deleted.

1. **Contestation:** Contestation contains the Candidate\_Id and the seats that the candidate is running from. Both attributes combined make a primary key, as a single candidate could be running from multiple seats. Candidate\_Id references the Candidate\_Id attribute from the candidate table. On Update, the Candidate\_Id is cascaded so we can have the update everywhere the Candidate\_Id is referenced. The delete operation is restricted for Candidate\_Id since you cannot delete a candidate from the election. Seats reference the field of C\_Code from the constituency table. On Update, it is Cascaded and the delete operation is again restricted as you cannot delete a constituency in an election.
2. **Election:** It contains Election\_id, type, date and officer of the election. Election\_id is the primary key and is kept Auto Incremental for ease, and date and type have the constraint of Not Null, as they provide necessary information for our relation.
3. **Political Party:** It contains Party Id, Party name, Symbol and Agenda of the party. Party Id is the primary key and Party Name has the unique constraint because two parties cannot share the same name. Party Name and Symbol also have a constraint of Not Null because they are essential.
4. **Polling Station:** It contains the Polling Station Id, the Election Id, NA code and PA code. Polling Station Id and Election Id make the composite key of the relation. NA code and PA code have the constraint of Not Null since every Polling station has a NA and PA seat for which the votes are casted and it is essential for us to know these seats for each polling station. Election Id references the field Election\_id from the Election table. Both Update and Delete operations are restricted for it because Election id is an Auto Incremental and it does not make sense to delete or update it. NA code and PA code both reference the constituency code from the constituency table. Delete operation is restricted for them since we cannot delete a constituency from an election and the seats are Cascaded On Update.
5. **Polling Station Details:** It has the polling station Id, Street Address, City and District for a polling station. Polling station Id is the primary key, it is also kept Auto Incremental for ease, and other than that District has a constraint of Not Null, since it will be crucial for us to determine the results of the election. District references the field of District from the Province table. It is cascaded on update and the delete operation is restricted since a district cannot be deleted.
6. **Province:** It has the Province name and the names of the districts present in that Province. District is the primary key of the relation and the Province has the constraint of Not Null, since every district is bound to belong to a Province and that Province has to be known to determine the results of the election.
7. **Registered Voters:** It has the voter CNIC, Name, Street Address, City and District for a Voter and also the Id of the polling station that the voter is registered in. voter CNIC is the primary key of the relation. Voter’s Name, District and Polling Station Id have the constraint of Not Null, as they are the essential information for our relation. The Polling Station Id references the Field Poll\_id from the Polling Station Details table. The Update operation is restricted for it since it is an Auto Incremental field, so updating would not make sense. Delete operation is also restricted because a polling station cannot be deleted. The District field references the District field from the Province table. It is Cascaded on Update and Delete is restricted because a district cannot be deleted.
8. **Voting:** It has the Polling Station Id, the Election Id, Candidate Id, Assembly of Contestation for that candidate and the Votes recorded for that candidate. Polling Station Id, Election Id, Candidate Id and the Assembly of Contestation make the composite key for this relation. Votes recorded have the constraint of Not Null because we they are essential to determine the results of the election. Election Id references the field Election\_id from the reference table. Both update and delete operations are restricted for it since we cannot delete or update an Election Id. Polling Station Id references the field of Poling Station Id from the Polling Station details table. Both Updating and Deleting is restricted for it.