# CS306 Project: Energy Production and Emission
# STEP III

Berkem Elgül – 29363

Hamza Özdemir – 31239

Mert Dilek – 27927

Doğukan Dizman – 28196

Mehmet Eren Ege – 28185

https://github.com/xxRevo/CS306Project_Group10

All the commands used for all 3 sub-steps for our Step III is in the UsedCommands.txt  file within the Step III folder, or cleaned log file is provided in the same folder as sql_cleaned_before_create_view.log

1 – Part A) For Views regarding part A we have implemented the following views:

→ View to find top 10 clean energy producing countries between 1990 and 2019. (UsedCommands.txt, line 63)

→ View to find top 10 dirty energy producing countries between 1990 and 2019. (UsedCommands.txt, line 90)

1 – Part B) For "join" and "set" operations we have the following:

→ Countries appearing in both views. (UsedCommands.txt, line 118)

→ Countries that appear in top clean energy but not in top dirty energy view. (UsedCommands.txt, line 127)

→ Countries that appear in top clean energy view but not in top dirt energy view. (UsedCommands.txt, line 137)

1 – Part C) For "in" and "exists" statements we used these implementations:

→ Using "in" to implement a common country finder among clean and dirty energy views. (UsedCommands.txt, line 149)

→ Using "exists" operator to implement common country finder among clean and dirty energy views. (UsedCommands.txt, line 162)

1 – Part D) Regarding "aggregate operators" we have used them in the following way within our implementation:

→ Using "COUNT" and "AVG" to count the total number of countries that have clean energy production higher than average clean energy production of all countries. (UsedCommands.txt, line 179)

→ Using "MIN" to find the country with the least amount of dirty energy production among the top ten most dirty energy producers. (UsedCommands.txt, line 192)

→ Using "SUM" to find accumulated dirty energy production by the top ten dirty energy producing countries. (UsedCommands.txt, line 202)

→ "MAX" operator was implemented whilst creating views in part A. (UsedCommands.txt, line 66-77-93-104)

2) For constraints and triggers, we have added a constraint for our clean energy production such that no negative values can remain or be added to the table since it is impossible for a country to produce a negative amount of clean energy (since we do not take consumption of clean energy into consideration in our project). Any negative value input for clean energy production will result in the following error:

→ **Error Code: 3819. Check constraint 'clean_energy_constraint' is violated.**

Any invalid values for clean energy production is set to 0 among the rows already in the table. (UsedCommands.txt, line 208)

3) As our stored procedure we have implemented a procedure that takes "iso_code" as input and outputs the clean energy production, dirty energy production and total energy production of the country with the same "iso_code" within the date range of our dataset. (UsedCommands.txt, line 239)