

Question a)

```
SELECT year, country_name as country
FROM happiness
WHERE (rank=1)
ORDER BY year
```

year	country
2015	Switzerland
2016	Denmark
2017	Norway
2018	Finland
2019	Finland

Question b)

```
SELECT year , AVG (happiness_score) as average_happiness
FROM happiness
GROUP BY year
ORDER BY year
```

year	average_happiness
2015	5.40033551423173
2016	5.41658000628154
2017	5.38433557228754
2018	5.40149663118708
2019	5.43163086263925

Question c)

```
SELECT year, rank
FROM happiness
WHERE (country_name= 'Portugal')
ORDER BY year
```

year	rank
2015	88
2016	94
2017	89
2018	77
2019	66

Question d)

1) TOP 10 GDP

```
SELECT year, AVG(happiness_score) as average_happiness
FROM country JOIN happiness USING(country_name)
WHERE GDP >= ANY(SELECT GDP
                  FROM country JOIN happiness USING (country_name)
                  GROUP BY country_name
                  ORDER BY GDP DESC
                  LIMIT 10)
GROUP BY year
ORDER BY year
```

year	average_happiness
2015	7.27659993171692
2016	7.23679995536804
2017	7.2103000164032
2018	7.22979998588562
2019	7.25779995918274

2) Bottom 10 GDP

```
SELECT year, AVG(happiness_score) as average_happiness
FROM country JOIN happiness USING(country_name)
WHERE GDP <= ANY(SELECT GDP
                  FROM country JOIN happiness USING (country_name)
                  GROUP BY country_name
                  ORDER BY GDP ASC
                  LIMIT 10)
GROUP BY year
ORDER BY year
```

year	average_happiness
2015	4.00377779536777
2016	4.11340000629425
2017	4.10100001758999
2018	4.01488884290059
2019	4.0150000333786

3) higher (10 countries) infant mortality

```
SELECT year, AVG(happiness_score) as average_happiness
FROM country JOIN happiness USING(country_name)
WHERE infant_mortality >= ANY(SELECT infant_mortality
```

```

FROM country JOIN happiness USING (country_name)
GROUP BY country_name
ORDER BY infant_mortality DESC
LIMIT 10)

```

```

GROUP BY year
ORDER BY year

```

year	average_happiness
2015	4.29466666115655
2016	4.23099997639656
2017	4.31011112531026
2018	4.30044439103868
2019	4.39637500047684

4) higher literacy

```

SELECT year, AVG(happiness_score) as average_happiness
FROM country JOIN happiness USING(country_name)
WHERE literacy >= ANY(SELECT literacy
                      FROM country JOIN happiness USING (country_name)
                      GROUP BY country_name
                      ORDER BY literacy DESC
                      LIMIT 10)

```

```

GROUP BY year
ORDER BY year

```

year	average_happiness
2015	6.67019996643066
2016	6.70800004005432
2017	6.72430005073547
2018	6.76559991836548
2019	6.84450006484985

5) lower literacy

```

SELECT year, AVG(happiness_score) as average_happiness
FROM country JOIN happiness USING(country_name)
WHERE literacy <= ANY(SELECT literacy
                    FROM country JOIN happiness USING (country_name)
                    GROUP BY country_name
                    ORDER BY literacy ASC
                    LIMIT 10)

```

```

GROUP BY year
ORDER BY year

```

year	average_happiness
2015	3.88637498021126
2016	4.10166666242811
2017	4.21222223175897
2018	4.32966658804152
2019	4.45109996795654

Question e)

```

SELECT tab2015.country_name, tab2019.h2019-tab2015.h2015 as improvement
FROM (SELECT country_name, happiness_score as h2015
      FROM country JOIN happiness USING (country_name)
      WHERE (year IN (SELECT year --this case the minimum year is 2015
                      FROM happiness
                      ORDER BY year
                      LIMIT 1 ))
      ORDER BY country_name) as tab2015
JOIN (SELECT country_name, happiness_score as h2019
      FROM country JOIN happiness USING (country_name)
      WHERE (year IN (SELECT year -- this case the most updated year is 2019
                      FROM happiness
                      Order by year DESC
                      LIMIT 1 ))
      ORDER BY country_name) as tab2019 ON (tab2015.country_name
      =tab2019.country_name)
ORDER BY improvement DESC
LIMIT 3

```

1) Most improved between 2015 and 2019 (if we had other years would be the difference between the most recent year and the oldest year)

country_name	improvement
Benin	1.543
Togo	1.246
Honduras	1.072

2) Larger regression (same code just ordering by ascending and renaming it regression)

country_name	regression
Venezuela	-2.103
Lesotho	-1.096
Zambia	-1.022

Extra questions:

1) What is the average GDP and happiness score for each region? (region, avg_gdp, avg_happiness)

```
SELECT region, avg(gdp) as avg_GDP, avg(happiness_score) as avg_happiness
FROM country join happiness USING (country_name)
GROUP BY region
ORDER BY avg_GDP
```

region	avg_gdp	avg_happiness
SUB-SAHARAN AFRICA	2232.9729729729730	4.19599998577221
C.W. OF IND. STATES	4000.0000000000000	5.26346664428711
NORTHERN AFRICA	5460.0000000000000	5.10808002471924
LATIN AMER. & CARIB	6090.0900900900901	6.02381080979699
ASIA (EX. NEAR EAST)	8241.2844036697247706	5.19404585864566
EASTERN EUROPE	9808.3333333333333	5.50856670538584
BALTICS	11300.000000000000	5.74793338775635
NEAR EAST	12297.183098591549	5.56385913701125
OCEANIA	25300.000000000000	7.29460000991821
WESTERN EUROPE	28757.894736842105	6.84493682760941
NORTHERN AMERICA	33800.000000000000	7.17470002174377

2) For each region which his the best ranked country for 2019? And what is that rank? (region, country,rank)

```
SELECT region, country_name, rank as best_rank_2019
FROM country join happiness USING (country_name)
WHERE ((year = 2019) and (region, rank) IN (SELECT region, min(rank) as best
FROM country join happiness USING (country_name)
WHERE(year=2019)
GROUP BY region
ORDER BY region))
```

region	country_name	best_rank_2019
WESTERN EUROPE	Finland	1
OCEANIA	New Zealand	8
NORTHERN AMERICA	Canada	9
LATIN AMER. & CARIB	Costa Rica	12
NEAR EAST	Israel	13
EASTERN EUROPE	Czech Republic	20
ASIA (EX. NEAR EAST)	Taiwan	25
C.W. OF IND. STATES	Uzbekistan	41
BALTICS	Lithuania	42
SUB-SAHARAN AFRICA	Mauritius	57
NORTHERN AFRICA	Libya	72