Lab 2

The VietNam Geographic Database has the following structure:

**PROVINCE\_CITY** **(CODE\_P\_C**, NAME\_P\_C, AREA, POPULATION, REGION)

**BORDER** (**COUNTRY, CODE\_P\_C**)

**NEIGHBOR** **(CODE\_P\_C, NB**)

## Attribute Description datatype Size

CODE\_P\_C code of province/city varchar 3

NAME\_P\_C name of province/city nvarchar 30

AREA Area (Km2) float

POPULATION population (people) bigint

REGION North; central or South nvarchar 10

COUNTRY country nvarchar 15

NB like CODE\_P\_C

**PROVICE\_CITY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CODE\_P\_C** | **NAME\_P\_C** | **AREA** | **POPULATION** | **REGION** |
| AG | [An Giang](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/An_Giang/) | 3406 | 2142709 | South |
| BR | [Bà Rịa - Vũng Tàu](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Ba_Ria-Vung_Tau/) | 1982 | 996682 | South |
| BC | [Bắc Cạn](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Bac_Kan/) | 4857 | 293826 | North |
| BG | [Bắc Giang](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Bac_Giang/) | 3823 | 1554131 | North |
| BL | [Bạc Liêu](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Bac_Lieu/) | 2526 | 856518 | South |
| BN | [Bắc Ninh](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Bac_Ninh/) | 808 | 1024472 | North |
| BT | [Bến Tre](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Ben_Tre/) | 2322 | 1255946 | South |
| BDI | [Bình Định](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Binh_Dinh/) | 6025 | 1486465 | Central |
| BD | [Bình Dương](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Binh_Duong/) | 2696 | 1481550 | South |
| BP | [Bình Phước](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Binh_Phuoc/) | 6857 | 873598 | South |
| BTH | [Bình Thuận](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Binh_Thuan/) | 7828 | 1167023 | Central |
| CM | [Cà Mau](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Ca_Mau/) | 5202 | 1206938 | South |
| CT | [Cần Thơ](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Can_Tho/) | 1390 | 1188435 | South |
| CB | [Cao Bằng](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Cao_Bang/) | 6691 | 507183 | North |
| DN | [Đà Nẵng](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Thanh_pho_Da_Nang/) | 1256 | 887435 | Central |
| DL | [Đắc Lắc](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Dak_Lak/) | 13085 | 1733624 | Central |
| DNO | [Đắc Nông](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/ak_Nong/) | 6515 | 489392 | Central |
| DB | [Điện Biên](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Dien_Bien/) | 9560 | 490306 | North |
| DNA | [Đồng Nai](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Dong_Nai/) | 5895 | 2486154 | South |
| DT | [Đồng Tháp](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Dong_Thap/) | 3246 | 1666467 | South |
| GL | [Gia Lai](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Gia_Lai/) | 15495 | 1274412 | Central |
| HG | [Hà Giang](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Ha_Giang/) | 7884 | 724537 | North |
| HNA | [Hà South](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Tinh_Ha_Nam/) | 852 | 784045 | North |
| HN | [Hà Nội](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Thanh_pho_Ha_Noi/) | 3334,47 | 6451909 | North |
| HT | Hà Tây | 2193 | 2047000 | North |
| HTI | Hà Tĩnh | 6055,70 | 1227554 | North |
| HD | [Hải Dương](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Tinh_Hai_Duong/) | 1648 | 1705059 | North |
| HP | [Hải Phòng](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Bai_bien_Do_Son/) | 1526 | 1837173 | North |
| HAG | [Hậu Giang](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/20100327-Hau_Giang/) | 1608 | 757300 | South |
| HB | [Hòa Bình](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Hoa_Binh/) | 4663 | 785217 | North |
| HY | [Hưng Yên](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Hung_Yen/) | 923 | 1127903 | North |
| KH | [Khánh Hòa](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Khanh_Hoa/) | 5198 | 1157604 | Central |
| KG | [Kiên Giang](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Kien_Giang/) | 6268 | 1688248 | South |
| KT | [Kon Tum](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Kon_Tum/) | 9615 | 430133 | Central |
| LC | [Lai Châu](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Lai_Chau/) | 9059 | 370502 | North |
| LD | [Lâm Đồng](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Lam_ong/) | 9765 | 1187574 | Central |
| LS | [Lạng Sơn](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Lang_Son/) | 8305 | 732515 | North |
| LCA | [Lào Cai](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Huyen_Sa_Pa/) | 6357 | 614595 | North |
| LA | [Long An](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Long_An/) | 4491 | 1436066 | South |
| ND | [Nam Định](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Nam_Dinh/) | 1641 | 1828111 | North |
| NA | Nghệ An | 16487 | 3113055 | Central |
| NB | [Ninh Bình](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Ninh_Binh/) | 1384 | 898999 | North |
| NT | [Ninh Thuận](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Ninh_Thuan/) | 3360 | 564993 | Central |
| PT | [Phú Thọ](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Phu_Tho/) | 3520 | 1316389 | North |
| PY | [Phú Yên](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Phu_Yen/) | 5045 | 862231 | Central |
| QB | Quảng Bình | 8051,80 | 846924 | Central |
| QN | [Quảng Nam](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Quang_Nam/) | 10407 | 1422319 | Central |
| QNG | [Quảng Ngãi](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Quang_Ngai/) | 5138 | 1216773 | Central |
| QNI | [Quảng Ninh](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Quang_Ninh/) | 5900 | 1144988 | North |
| QT | Quảng Trị | 4745,70 | 597985 | North |
| ST | [Sóc Trăng](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Soc_Trang/) | 3223 | 1292853 | South |
| SL | [Sơn La](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Son_La/) | 14055 | 1076055 | North |
| TN | [Tây Ninh](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Tay_Ninh/) | 4030 | 1066513 | South |
| TB | [Thái Bình](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Thai_Binh/) | 1545 | 1781842 | North |
| TNG | [Thái Nguyên](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Thai_Nguyen/) | 3543 | 1123116 | North |
| TH | Thanh Hóa | 11116 | 3400595 | North |
| TTH | Thừa Thiên Huế | 5053,99 | 1087579 | Central |
| TG | [Tiền Giang](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Tien_Giang/) | 2367 | 1672271 | South |
| HCM | [TP Hồ Chí Minh](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Thanh_pho_Ho_Chi_Minh/) | 2095 | 7162864 | South |
| TV | [Trà Vinh](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Tra_Vinh/) | 2215 | 1003012 | South |
| TQ | [Tuyên Quang](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Tuyen_Quang/) | 5868 | 724821 | North |
| VL | [Vĩnh Long](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Vinh_Long/) | 1475 | 1024707 | South |
| VP | [Vĩnh Phúc](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Vinh_Phuc/) | 1371 | 999786 | North |
| YB | [Yên Bái](http://www.dulichvietnam.com.vn/Desktop.aspx/64-tinh/64-tinh/Yen_Bai/) | 6883 | 740387 | North |

**NEIGHBOR**: **BORBER**:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| CODE\_P\_C | **NB** |  | CODE\_P\_C | **NB** |  | **COUNTRY** | CODE\_P\_C |
| AG | DT |  | CT | AG |  | CPC | AG |
| AG | CT |  | CT | DT |  | CPC | DL |
| AG | KG |  | CT | VL |  | CPC | DT |
| BR | HCM |  | CT | KG |  | CPC | GL |
| BR | BTH |  | CT | BL |  | CPC | KG |
| BR | DNA |  | CT | ST |  | CPC | LA |
| DNA | BTH |  | DT | AG |  | CPC | BP |
| DNA | BR |  | DT | LA |  | CPC | TN |
| DNA | HCM |  | DT | TG |  | LAO | GL |
| BD | TN |  | HAG | CT |  | LAO | LC |
| BD | DNA |  | HAG | ST |  | LAO | NT |
| BD | BP |  | HAG | VL |  | LAO | BT |
| BD | HCM |  | HAG | KG |  | TQ | CB |
| BP | DL |  | HAG | BL |  | TQ | LC |
| BP | BD |  | LA | TN |  |  |  |
| BP | LD |  | LA | TG |  |  |  |
| BP | DNA |  | LA | DT |  |  |  |
| BL | KG |  | LA | HCM |  |  |  |
| BL | CT |  | HCM | BD |  |  |  |
| BL | CM |  | HCM | TN |  |  |  |
| BL | ST |  | HCM | DNA |  |  |  |
| BT | TG |  | HCM | BR |  |  |  |
| BT | VL |  | HCM | LA |  |  |  |
| BT | TV |  | HCM | TG |  |  |  |
| BT | HCM |  | TG | LA |  |  |  |
| CM | KG |  | TG | DT |  |  |  |
| CM | BL |  | TG | BT |  |  |  |
|  |  |  | TG | VL |  |  |  |
|  |  |  | TN | BD |  |  |  |
|  |  |  | TN | BP |  |  |  |
|  |  |  | TN | LA |  |  |  |
|  |  |  | TN | HCM |  |  |  |
|  |  |  | BTH | DNA |  |  |  |

**Query** :

1. Write An SQL Query to show the names of the provinces/cities with the regions is in the North.
2. Write An SQL Query to show the names of the provinces/cities which have area more than 5000 Km2.
3. Write An SQL Query to compute the area average of all provinces/cities (sum(area) divide count(Code\_p\_c)).
4. Write An SQL Query to show the names and the population of provinces/cities which have area more than 10000 Km2.
5. Write An SQL Query to show the code, the name of the border provinces/cities located in the North region.
6. Please indicate the country code is the border of the provinces in the South.
7. Show the average area of the provinces/cities. (Use function AVG)
8. Show the population density along with the names of provinces / cities.
9. Show the name of the neighboring provinces/cities with ‘Long An’.
10. Display the total of the provinces/cities bordering with cambodia.
11. Display the name of the provinces/cities with the largest area.
12. Display the name of the provinces/cities have the lowest population density.
13. Display the names of the provinces/cities bordering with two different countries.
14. Display the list of regions with the total of provinces/cities in those regions.
15. Show the name the provinces/cities with the most neighbors.
16. Show the name of the provinces/cities have smaller area than the average of all provinces/cities.
17. Show the names of the provinces /cities border with provinces/cities in the 'South' but They are not in the 'South'.
18. Display the names of provinces/cities have the area larger than all of its neighbors.
19. Display the names of the provinces/cities that we can go to by going from 'Ho Chi Minh City' through three different provinces/cities by car (Do not return to the province/city has passed)

Create database VN\_GP

Go

Use VN\_GP

Go

Create table Provice\_City (

Code\_PC varchar(5) primary key,

Name\_PC nvarchar(30) not null,

Area float,

Population bigint,

Region char(5) );

Create table Border (

Code\_PC varchar(5),

Country varchar(15),

Primary key (Code\_PC, Country),

Foreign key (Code\_PC) references Provice\_City);

Create table Neighbor (

Code\_PC varchar(5),

NB varchar(5),

Primary key (Code\_PC, NB),

Foreign key (Code\_PC) references Provice\_City

)

select \* from Provice\_City