# Database Assignment: Part II

**Context:** U.S. Census Bureau and Bureau of Economic Analysis periodically releases U.S. International Trade in Goods and Services. You will get to see how much U.S. exported and imported in various goods and services. Is U.S. importing more than it exports? Which products do U.S. export and import the most? Does U.S. run a trade deficit? If so, how big is this? These are some important statistics that student should be familiar with. In doing this analysis you will also run how to store, process, and query data.

### **Task:**

You are given a database called Import\_Export. It has four tables – Category, item, time, and fact.

# Table specifications (underlined attributes are primary keys)

**Category** (CategoryID, Category)

CategoryID 🡪 Text, Field size 5 (if you enter anything less you should get an error)

Category 🡪 Text

**Item** (ItemID, Item, CategoryID)

ItemID 🡪 Text; Field size 4 (if you enter anything less than 4 characters you should be warned)

Item 🡪 Text

CategoryID 🡪 Text; Field size 5

**Time** (TimeID, Year, Month)

TimeID 🡪 Text; Field size 6

Year 🡪 number

Month 🡪 Text; Month must be January to December

**Fact** ( **ItemID, TimeID, ImportExport**, Amount)

ItemID, TimeID as defined in other tables

ImportExport 🡪 Text;

Amount 🡪 number

Please execute the following queries

* 1. What are the total import and export for consumer goods during 2006 and 2007? (create two queries respectively)

|  |  |  |
| --- | --- | --- |
| **Year** | **Import/Export** | **Total\_Amount** |
| 2006 | Export | 1480193 |
| 2006 | Import | 2400184 |
| 2007 | Export | 1492829 |
| 2007 | Import | 2158085 |

* 1. How much crude oil did the U.S. import during each of the months in 2006 and 2007? Analyze this result. Is it consistently increasing?

The import of the crude oil fluctuates from time to time.

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Amount** | **Prev\_Amount** | **Increase** |
| 200601 | 16359 |  |  |
| 200602 | 18114 | 16359 | 1755 |
| 200603 | 16589 | 18114 | -1525 |
| 200604 | 16663 | 16589 | 74 |
| 200605 | 19432 | 16663 | 2769 |
| 200606 | 20131 | 19432 | 699 |
| 200607 | 19951 | 20131 | -180 |
| 200608 | 2459 | 19951 | -17492 |
| 200609 | 19464 | 2459 | 17005 |
| 200610 | 15963 | 19464 | -3501 |
| 200611 | 15867 | 15963 | -96 |
| 200612 | 16676 | 15867 | 809 |
| 200701 | 17718 | 16676 | 1042 |
| 200702 | 15205 | 17718 | -2513 |
| 200703 | 17445 | 15205 | 2240 |
| 200704 | 17476 | 17445 | 31 |
| 200705 | 18145 | 17476 | 669 |
| 200706 | 18601 | 18145 | 456 |
| 200707 | 18954 | 18601 | 353 |
| 200708 | 19326 | 18954 | 372 |
| 200709 | 19549 | 19326 | 223 |
| 200710 | 21476 | 19549 | 1927 |
| 200711 | 25223 | 21476 | 3747 |

* 1. Which are the top 2 **categories** for exports in 2006? Which are the top 2 categories for imports in 2006?

|  |  |  |
| --- | --- | --- |
| **Category** | **Import/Export** | **total** |
| Industrial supplies and materials | Import | 636949 |
| Capital goods, except automotive | Import | 452631 |
| Capital goods, except automotive | Export | 413910 |
| Automotive vehicles, parts, and engines | Export | 125813 |

* 1. How much did the U.S. import and export items related to **computers or semiconductors** during each of the months in 2006 and 2007? Analyze the results.

|  |  |  |  |
| --- | --- | --- | --- |
| **Time** | **Import/Export** | **Item** | **total** |
| 200601 | Export | Computers | 910 |
| 200601 | Export | Semiconductors | 4219 |
| 200601 | Import | Computers | 2606 |
| 200601 | Import | Semiconductors | 2265 |
| 200602 | Export | Computers | 841 |
| 200602 | Export | Semiconductors | 4161 |
| 200602 | Import | Computers | 2634 |
| 200602 | Import | Semiconductors | 2245 |
| 200603 | Export | Computers | 931 |
| 200603 | Export | Semiconductors | 4229 |
| 200603 | Import | Computers | 3135 |
| 200603 | Import | Semiconductors | 2234 |
| 200604 | Export | Computers | 902 |
| 200604 | Export | Semiconductors | 4598 |
| 200604 | Import | Computers | 3001 |
| 200604 | Import | Semiconductors | 2353 |
| 200605 | Export | Computers | 974 |
| 200605 | Export | Semiconductors | 4603 |
| 200605 | Import | Computers | 2854 |
| 200605 | Import | Semiconductors | 2246 |
| 200606 | Export | Computers | 1097 |
| 200606 | Export | Semiconductors | 4512 |
| 200606 | Import | Computers | 2637 |
| 200606 | Import | Semiconductors | 2142 |
| 200607 | Export | Computers | 912 |
| 200607 | Export | Semiconductors | 4484 |
| 200607 | Import | Computers | 2888 |
| 200607 | Import | Semiconductors | 2337 |
| 200608 | Export | Computers | 1022 |
| 200608 | Export | Semiconductors | 4577 |
| 200608 | Import | Computers | 1485 |
| 200608 | Import | Semiconductors | 5541 |
| 200609 | Export | Computers | 916 |
| 200609 | Export | Semiconductors | 4352 |
| 200609 | Import | Computers | 2771 |
| 200609 | Import | Semiconductors | 2340 |
| 200610 | Export | Computers | 1057 |
| 200610 | Export | Semiconductors | 4250 |
| 200610 | Import | Computers | 2735 |
| 200610 | Import | Semiconductors | 2292 |
| 200611 | Export | Computers | 990 |
| 200611 | Export | Semiconductors | 4306 |
| 200611 | Import | Computers | 3063 |
| 200611 | Import | Semiconductors | 2254 |
| 200612 | Export | Computers | 879 |
| 200612 | Export | Semiconductors | 4039 |
| 200612 | Import | Computers | 2564 |
| 200612 | Import | Semiconductors | 2218 |
| 200701 | Export | Computers | 1108 |
| 200701 | Export | Semiconductors | 4179 |
| 200701 | Import | Computers | 3809 |
| 200701 | Import | Semiconductors | 2285 |
| 200702 | Export | Computers | 1198 |
| 200702 | Export | Semiconductors | 4000 |
| 200702 | Import | Computers | 3402 |
| 200702 | Import | Semiconductors | 2280 |
| 200703 | Export | Computers | 963 |
| 200703 | Export | Semiconductors | 4063 |
| 200703 | Import | Computers | 3408 |
| 200703 | Import | Semiconductors | 2193 |
| 200704 | Export | Computers | 1090 |
| 200704 | Export | Semiconductors | 3991 |
| 200704 | Import | Computers | 3212 |
| 200704 | Import | Semiconductors | 2188 |
| 200705 | Export | Computers | 1098 |
| 200705 | Export | Semiconductors | 4121 |
| 200705 | Import | Computers | 3319 |
| 200705 | Import | Semiconductors | 2182 |
| 200706 | Export | Computers | 1087 |
| 200706 | Export | Semiconductors | 4332 |
| 200706 | Import | Computers | 3547 |
| 200706 | Import | Semiconductors | 2139 |
| 200707 | Export | Computers | 1123 |
| 200707 | Export | Semiconductors | 4016 |
| 200707 | Import | Computers | 3079 |
| 200707 | Import | Semiconductors | 2104 |
| 200708 | Export | Computers | 1176 |
| 200708 | Export | Semiconductors | 3897 |
| 200708 | Import | Computers | 3346 |
| 200708 | Import | Semiconductors | 2307 |
| 200709 | Export | Computers | 1240 |
| 200709 | Export | Semiconductors | 4211 |
| 200709 | Import | Computers | 3449 |
| 200709 | Import | Semiconductors | 2230 |
| 200710 | Export | Computers | 1111 |
| 200710 | Export | Semiconductors | 4277 |
| 200710 | Import | Computers | 3355 |
| 200710 | Import | Semiconductors | 2263 |
| 200711 | Export | Computers | 1208 |
| 200711 | Export | Semiconductors | 4243 |
| 200711 | Import | Computers | 3329 |
| 200711 | Import | Semiconductors | 2263 |

* 1. Which are the top 5 **Items** for imports? Which are the top 5 **items** for exports? What can you conclude about imports and exports?

Top 5 import and export items are as follows in descending order :

|  |  |  |
| --- | --- | --- |
| **Item** | **Import/Export** | **total** |
| Automotive vehicles, parts, and engines | Import | 615749 |
| Crude oil | Import | 406786 |
| Other private services | Import | 227473 |
| Travel | Import | 142041 |
| Pharmaceutical preparations | Import | 125617 |
| Agricultural machinery, equipment | Export | 10545 |
| Agric. farming-unmanufactured | Export | 4359 |
| Agric. industry-unmanufactured | Export | 3492 |
| Agriculture-manufactured, other | Export | 3486 |
| Alcoholic beverages, excluding wine | Export | 2013 |

These items imply that this country is primary industry-oriented. The automobile or automobile-related industries and pharmaceutical preparations, which are the tertiary industries, rely mostly on imports. It also shows the economy of developing countries by importing private services.

* 1. Does the U.S. export or import more of agriculture and agriculture-related goods? Analyze the results for 2006.

|  |  |
| --- | --- |
| **Import/Export** | **Sum** |
| Export | 10522 |
| Import | 6469 |

* 1. What are total exports and imports for goods and services for the year 2006? (All except Services category can be classified under goods). Does the U.S. import more services than exports? How about for goods?

Goods import more than exports, whereas service sector imports less than exports.

|  |  |
| --- | --- |
| **Import/Export** | **Total\_Goods\_Amount** |
| Export | 1057600 |
| Import | 2033457 |

|  |  |
| --- | --- |
| **Import/Export** | **Total\_Service\_Amount** |
| Export | 422593 |
| Import | 366727 |

* 1. For each of the months in 2006 and 2007, compute the total imports and exports. Does U.S. have a trade surplus or deficit? (Note – Use CrossTab Query; That is, Query 🡪 crosstab. Here you select TimeID to be Row Heading under Crosstab, and ImportExport as Column Heading. Your amount will be the value under Crosstab. In order to find deficit, use any approach you want. You can run another query on this query to find or import to Excel and compute the difference). Deficit means, U.S. imports more than exports.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Time** | **Export** | **Import** | **Difference** | **Status** |
| 200601 | 825517 | 1395464 | -569947 | Deficit |
| 200602 | 814975 | 1365819 | -550844 | Deficit |
| 200603 | 833833 | 1369550 | -535717 | Deficit |
| 200604 | 830501 | 1278172 | -447671 | Deficit |
| 200605 | 855960 | 1404018 | -548058 | Deficit |
| 200606 | 868812 | 1423093 | -554281 | Deficit |
| 200607 | 860391 | 1446718 | -586327 | Deficit |
| 200608 | 882875 | 1481200 | -598325 | Deficit |
| 200609 | 877737 | 1453802 | -576065 | Deficit |
| 200610 | 900284 | 1423478 | -523194 | Deficit |
| 200611 | 910952 | 1430569 | -519617 | Deficit |
| 200612 | 899514 | 1329405 | -429891 | Deficit |
| 200701 | 904183 | 1322622 | -418439 | Deficit |
| 200702 | 885794 | 1298787 | -412993 | Deficit |
| 200703 | 906094 | 1347521 | -441427 | Deficit |
| 200704 | 916657 | 1333010 | -416353 | Deficit |
| 200705 | 936390 | 1367933 | -431543 | Deficit |
| 200706 | 949830 | 1372644 | -422814 | Deficit |
| 200707 | 973476 | 1397774 | -424298 | Deficit |
| 200708 | 982219 | 1395023 | -412804 | Deficit |
| 200709 | 988316 | 1398117 | -409801 | Deficit |
| 200710 | 1000629 | 1414707 | -414078 | Deficit |
| 200711 | 1006215 | 1458457 | -452242 | Deficit |

* 1. For the year 2006, find all items imported that has an amount greater than the maximum export amount for any time in 2006.

|  |  |
| --- | --- |
| **Item** | **Imports** |
| Paper and paper products | 17185 |
| Chemicals-organic | 17526 |
| Household appliances | 17636 |
| Medicinal equipment | 21889 |
| Iron and steel mill products | 21922 |
| Furniture, household goods, etc. | 23343 |
| Industrial supplies, other | 24870 |
| Fuel oil | 25799 |
| Gas-natural | 26077 |
| Toys, games, and sporting goods | 26440 |
| Industrial machines, other | 26693 |
| Apparel, textiles, nonwool or cotton | 29153 |
| Passenger fares | 29812 |
| Semiconductors | 30467 |
| Materials handling equipment | 31482 |
| Computers | 32373 |
| Electric apparatus | 32782 |
| Direct defense expenditures | 33484 |
| TV's, VCR's, etc | 38503 |
| Telecommunications equipment | 39136 |
| Petroleum products, other | 41690 |
| Iron and steel products, n.e.c. | 45457 |
| Apparel, household goods - cotton | 45682 |
| Other household goods | 53909 |
| Other goods | 55423 |
| Pharmaceutical preparations | 59707 |
| Royalties and license fees | 59921 |
| Other transportation | 60333 |
| Computer accessories | 62585 |
| Travel | 72029 |
| Other private services | 107127 |
| Crude oil | 197668 |
| Automotive vehicles, parts, and engines | 376347 |