

Database Systems Final Project

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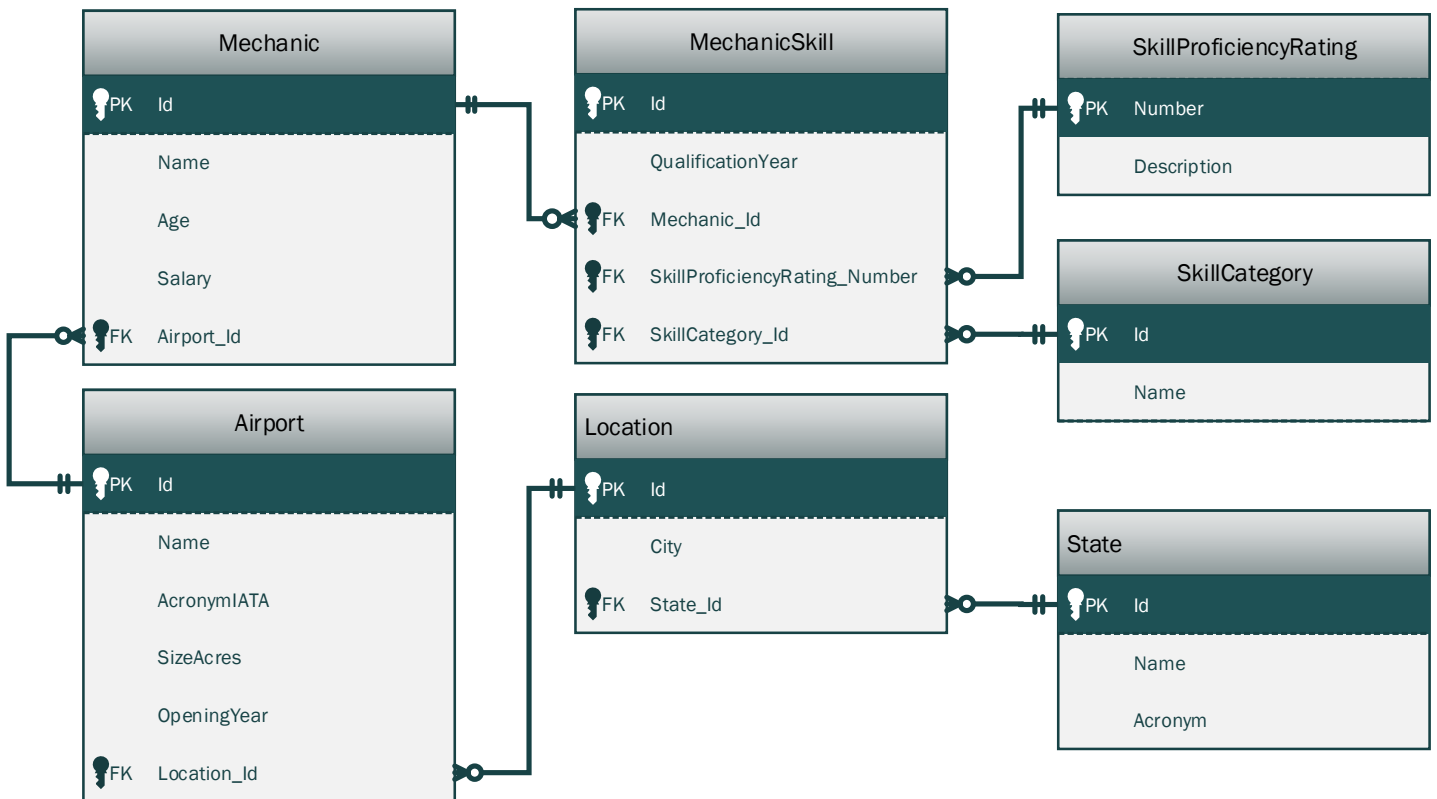
General Information

- The names of the database objects described below was written based on *SQL Server Standards Naming Conventions V.15* ¹;
- The ERD was created using the software *Microsoft Visio 2016*;
- The Database is currently maintained inside the *IndianaTech2.net* PH-PMYAdmin;
- There are 14 Queries inside this document. The last 2 two queries have the same purpose, the difference is about of which New York condition was used: The first refers the New York City, and the second refers the New York State;
- Number of rows from each table in the database:
 - **State**: 50;
 - **Location**: 90;
 - **Airport**: 98;
 - **Mechanic**: 196;
 - **MechanicSkill**: 392;
 - **SkillCategory**: 10;
 - **SkillProficiencyRating**: 4.
- Most data about the Airports was referred using real information found inside the Airport websites or Wikipedia pages.

¹http://www.isbe.net/ILDS/pdf/SQL_server_standards.pdf

ABC Airlines Entity-Relationship Diagram

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Indiana Institute of Technology (Indiana Tech) - 2015



SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 06:55 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `Name`, `Age` FROM `ABC_Mechanic` LIMIT 0, 500;

Rows: 196

| Name | Age |
|----------------------|-----|
| Kylie Minogue | 30 |
| Arya Stark | 19 |
| Abel Magwitch | 23 |
| Abra Bacon | 30 |
| Abraham Van Helsing | 40 |
| Adam Trask | 22 |
| Agnes Wickfield | 31 |
| Captain Ahab | 41 |
| Albus Dumbledore | 21 |
| Alex | 32 |
| Dr Alexandre Manette | 42 |
| Alice | 20 |
| Allan Woodcourt | 33 |
| Amelia Sedley | 43 |
| Beowulf | 19 |
| Don Quixote | 34 |
| Sancho Panza | 44 |
| Robinson Crusoe | 18 |
| Lemuel Gulliver | 35 |
| Clarissa Harlowe | 45 |
| Tom Jones | 24 |
| Tristram Shandy | 36 |
| Isabelle de Merteuil | 46 |
| Sebastian Valmont | 18 |
| Anne Steele | 28 |
| Colonel Brandon | 38 |
| Edward Ferrars | 48 |
| | |

| | |
|--------------------------|----|
| Elinor Dashwood | 58 |
| Fanny Dashwood | 68 |
| John Dashwood | 19 |
| John Willoughby | 29 |
| Lucy Steele | 39 |
| Margaret Dashwood | 49 |
| Marianne Dashwood | 59 |
| Robert Ferrars | 69 |
| Caroline Bingley | 20 |
| Lady Catherine de Bourgh | 30 |
| Charles Bingley | 40 |
| Charlotte Lucas | 50 |
| George Wickham | 60 |
| Georgiana Darcy | 21 |
| Catherine Bennet | 31 |
| Elizabeth Bennet | 41 |
| Fitzwilliam Darcy | 51 |
| Jane Bennet | 61 |
| Lydia Bennet | 22 |
| Mary Bennet | 32 |
| Edmund Bertram | 42 |
| Fanny Price | 52 |
| Henry Crawford | 62 |
| Julia Bertram | 23 |
| Maria Bertram | 33 |
| Mary Crawford | 43 |
| Sir Thomas Bertram | 53 |
| William Price | 63 |
| Augusta Elton | 24 |
| Anne Navarro | 34 |
| Frank Churchill | 44 |
| Harriet Smith | 54 |
| Henry Woodhouse | 64 |
| Isabella Knightley | 25 |
| Kacha Fergusson | 35 |
| Jane Fairfax | 45 |
| | |

| | |
|-----------------------------|----|
| Philip Elton | 55 |
| Todd Nenninger | 65 |
| Emma Woodhouse | 26 |
| George Knightley | 36 |
| Catherine Morland | 46 |
| Eleanor Tilney | 56 |
| John Jullian Gray | 66 |
| Frederick Tilney | 27 |
| Henry Tilney | 37 |
| Isabella Thorpe | 47 |
| James Morland | 57 |
| Erwin Fraser | 67 |
| Mat Gladys | 28 |
| John Thorpe | 38 |
| Anne Elliot | 48 |
| Charles Musgrove | 58 |
| Elizabeth Elliot | 68 |
| Captain Frederick Wentworth | 29 |
| Henrietta Musgrove | 39 |
| Robert Williams | 49 |
| Hope Garrison | 59 |
| Mac Bauer | 69 |
| James Benwick | 20 |
| Louisa Musgrove | 30 |
| Mary Musgrove | 40 |
| Sophia Croft | 50 |
| Dr Victor Frankenstein | 60 |
| Sir Walter Elliot | 21 |
| William Elliot | 31 |
| Charlie Quayle | 41 |
| Adam Clouser Davila | 51 |
| Peter Anders | 61 |
| Don Juan | 22 |
| Claude Frollo | 32 |
| Clopin Trouillefou | 42 |
| Esmeralda | 52 |
| | |

| Peer Irizarry | 62 |
|--------------------------|-----|
| Name | Age |
| Cesar Bloom | 23 |
| Phoebus de Chateaupers | 33 |
| Pierre Gringoire | 43 |
| Becky Ulrich | 53 |
| Quasimodo | 63 |
| Bill Sikes | 24 |
| Jack Dawkins | 34 |
| Nancy | 44 |
| Noah Claypole | 54 |
| Oliver Twist | 64 |
| Rose Maylie | 25 |
| Morgana Dawson Kritzer | 35 |
| Carol Silverman | 45 |
| Arthur gride | 55 |
| Fanny Squeers | 65 |
| Lord Frederick Verisopht | 26 |
| Henrietta Petowker | 36 |
| John Browdie | 46 |
| Kate Nickleby | 56 |
| Paul Petite | 66 |
| Madeline Bray | 27 |
| Matilda Price | 37 |
| Sir Mulberry Hawk | 47 |
| Erika Amge | 57 |
| Mary Lennox | 67 |
| Peter Rabbit | 28 |
| Thomasina Tittlemouse | 38 |
| Felicity King | 48 |
| Ana Paula Arosio | 58 |
| Sandra Annenberg | 68 |
| Wendy Darling | 29 |
| Tarzan | 39 |
| Regina Spektor | 49 |
| Gertrude Morel | 59 |
| | |

| | |
|-----------------|----|
| Paul Morel | 69 |
| Gregor Samsa | 20 |
| Stephen Dedalus | 30 |
| Hercule Poirot | 40 |
| Firion | 50 |
| Maria | 60 |
| Guy | 21 |
| Tom Cruise | 31 |
| Leon | 41 |
| Minwu | 51 |
| Josef | 61 |
| Gordon | 22 |
| Leila | 32 |
| Ricard | 42 |
| Scott | 52 |
| Taylor Swift | 62 |
| Justin Bieber | 23 |
| Nicki Minaj | 33 |
| Luneth | 43 |
| Arc | 53 |
| Refia | 63 |
| Ingus | 24 |
| Chris Brown | 34 |
| Cecil | 44 |
| Jessica Simpson | 54 |
| Jack Sparrow | 64 |
| Artemicion | 25 |
| Balthier | 35 |
| Squall Leonhart | 45 |
| Shantotto | 55 |
| Biggs | 65 |
| Wedge | 26 |
| Stiltzkin | 36 |
| Cid | 46 |
| Willian Smith | 56 |
| Cloud Strife | 66 |
| | |

| | |
|---------------------|----|
| Luso Clemens | 27 |
| Montblanc | 37 |
| Aerith Gainsborough | 47 |
| Harry Potter | 57 |
| Snow White | 67 |
| Bartz Klauser | 28 |
| Angelina Jolie | 38 |
| Brad Pitt | 48 |
| Terra Branford | 58 |
| Zidane Tribal | 68 |
| Vayne Solidor | 29 |
| Justin Timberlake | 39 |
| Emperor Mateus | 49 |
| Galenth Disley | 59 |
| Kefka Palazzo | 69 |
| Antonio Bandejas | 20 |
| Penélope Cruz | 30 |
| Mariah Carey | 40 |
| Renato Russo | 50 |
| Albert Einstein | 60 |
| Isaac Newton | 21 |
| Galileo Galilei | 31 |
| Marie Curie | 41 |
| Charles Darwin | 51 |
| James Clerk Maxwell | 61 |
| Nikola Tesla | 19 |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 07:24 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_Airport`.`Id`, `ABC_Airport`.`Name`, `ABC_Airport`.`AcronymIATA`, `ABC_Airport`.`SizeAcres`, `ABC_Airport`.`OpeningYear`, `ABC_Location`.`City`, `ABC_State`.`Name` FROM `ABC_Airport`, `ABC_Location`, `ABC_State` WHERE `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_State`.`Name` = 'Ohio' AND `ABC_Airport`.`SizeAcres` >= '20' AND `ABC_Airport`.`OpeningYear` >= '1935' ORDER BY `ABC_Airport`.`SizeAcres` ASC LIMIT 0, 500;

Rows: 2

| Id | Name | AcronymIATA | SizeAcres | OpeningYear | City | Name |
|----|-------------------------------------|-------------|-----------|-------------|----------|------|
| 67 | Port Columbus International Airport | CMH | 2185 | 1939 | Columbus | Ohio |
| 68 | Rickenbacker International Airport | LCK | 4342 | 1942 | Columbus | Ohio |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 07:27 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_Airport`.`Id`, `ABC_Airport`.`Name`, `ABC_Airport`.`AcronymIATA`, `ABC_Airport`.`SizeAcres`, `ABC_Airport`.`OpeningYear`, `ABC_Location`.`City`, `ABC_State`.`Name` FROM `ABC_Airport`, `ABC_Location`, `ABC_State` WHERE `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_State`.`Name` = 'Ohio' AND `ABC_Airport`.`SizeAcres` >= '20' AND `ABC_Airport`.`OpeningYear` >= '1935' LIMIT 0, 500;

Rows: 2

| Id | Name | AcronymIATA | SizeAcres | OpeningYear | City | Name |
|----|-------------------------------------|-------------|-----------|-------------|----------|------|
| 67 | Port Columbus International Airport | CMH | 2185 | 1939 | Columbus | Ohio |
| 68 | Rickenbacker International Airport | LCK | 4342 | 1942 | Columbus | Ohio |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 07:31 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT AVG(`ABC_Airport`.`SizeAcres`) FROM `ABC_Airport`, `ABC_Location`, `ABC_State` WHERE `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_State`.`Name` = 'Ohio' AND `ABC_Airport`.`OpeningYear` >= '1935' LIMIT 0, 500;

Rows: 1

| AVG(ABC_Airport`.`SizeAcres`) |
|-------------------------------|
| 3263.5 |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 07:33 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT COUNT(*) FROM `ABC_Airport`, `ABC_Location`, `ABC_State` WHERE
`ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`State_Id` =
`ABC_State`.`Id` AND `ABC_State`.`Name` = 'Ohio' AND `ABC_Airport`.`OpeningYear` >= '1935'
LIMIT 0, 500;

Rows: 1

| COUNT(*) |
|----------|
| 2 |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 07:41 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_State`.`Name`, COUNT(*) FROM `ABC_Airport`, `ABC_Location`, `ABC_State` WHERE `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_Airport`.`OpeningYear` >= '1935' GROUP BY `ABC_State`.`Name` LIMIT 0, 500;

Rows: 27

| Name | COUNT(*) |
|----------------|----------|
| Alaska | 1 |
| California | 2 |
| Colorado | 1 |
| Connecticut | 1 |
| Delaware | 1 |
| Florida | 6 |
| Hawaii | 3 |
| Illinois | 1 |
| Indiana | 1 |
| Kentucky | 1 |
| Louisiana | 1 |
| Maryland | 1 |
| Missouri | 1 |
| Nebraska | 1 |
| New Mexico | 1 |
| New York | 2 |
| North Carolina | 1 |
| North Dakota | 1 |
| Ohio | 2 |
| Oklahoma | 1 |
| Pennsylvania | 1 |
| South Dakota | 1 |
| Tennessee | 1 |
| Texas | 3 |
| Virginia | 2 |

| | |
|---------------|---|
| Washington | 2 |
| West Virginia | 1 |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 07:47 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_State`.`Name`, COUNT(*) FROM `ABC_Airport`, `ABC_Location`, `ABC_State` WHERE `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_Airport`.`OpeningYear` >= '1935' GROUP BY `ABC_State`.`Name` HAVING COUNT(*) >= '5' LIMIT 0, 500;

Rows: 1

| Name | COUNT(*) |
|---------|----------|
| Florida | 6 |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 07:52 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_Mechanic`.`Name`, `ABC_State`.`Name` FROM `ABC_Mechanic`, `ABC_Airport`, `ABC_Location`, `ABC_State` WHERE `ABC_Mechanic`.`Airport_Id` = `ABC_Airport`.`Id` AND `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_State`.`Name` = 'Ohio' LIMIT 0, 500;

Rows: 8

| Name | Name |
|-----------------|------|
| Wendy Darling | Ohio |
| Tarzan | Ohio |
| Regina Spektor | Ohio |
| Gertrude Morel | Ohio |
| Paul Morel | Ohio |
| Gregor Samsa | Ohio |
| Stephen Dedalus | Ohio |
| Hercule Poirot | Ohio |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 08:17 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_Mechanic`.`Name`, `ABC_SkillCategory`.`Name`,
`ABC_SkillProficiencyRating`.`Number` FROM `ABC_Mechanic`, `ABC_MechanicSkill`,
`ABC_SkillCategory`, `ABC_SkillProficiencyRating` WHERE `ABC_MechanicSkill`.`Mechanic_Id` =
`ABC_Mechanic`.`Id` AND `ABC_MechanicSkill`.`SkillCategory_Id` = `ABC_SkillCategory`.`Id`
AND `ABC_MechanicSkill`.`SkillProficiencyRating_Number` =
`ABC_SkillProficiencyRating`.`Number` AND `ABC_SkillCategory`.`Name` = 'Fan Blade Replacement'
AND `ABC_SkillProficiencyRating`.`Number` = '4' LIMIT 0, 500;

Rows: 19

| Name | Name | Number |
|------------------|-----------------------|--------|
| Lemuel Gulliver | Fan Blade Replacement | 4 |
| Fanny Dashwood | Fan Blade Replacement | 4 |
| Charlotte Lucas | Fan Blade Replacement | 4 |
| Fanny Price | Fan Blade Replacement | 4 |
| Harriet Smith | Fan Blade Replacement | 4 |
| Eleanor Tilney | Fan Blade Replacement | 4 |
| Charles Musgrove | Fan Blade Replacement | 4 |
| Sophia Croft | Fan Blade Replacement | 4 |
| Esmeralda | Fan Blade Replacement | 4 |
| Noah Claypole | Fan Blade Replacement | 4 |
| Kate Nickleby | Fan Blade Replacement | 4 |
| Ana Paula Arosio | Fan Blade Replacement | 4 |
| Wendy Darling | Fan Blade Replacement | 4 |
| Firion | Fan Blade Replacement | 4 |
| Scott | Fan Blade Replacement | 4 |
| Jessica Simpson | Fan Blade Replacement | 4 |
| Willian Smith | Fan Blade Replacement | 4 |
| Terra Branford | Fan Blade Replacement | 4 |
| Renato Russo | Fan Blade Replacement | 4 |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 08:16 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_Mechanic`.`Name`, `ABC_SkillCategory`.`Name`,
`ABC_SkillProficiencyRating`.`Number`, `ABC_State`.`Name` FROM `ABC_Mechanic`,
`ABC_MechanicSkill`, `ABC_SkillCategory`, `ABC_SkillProficiencyRating`, `ABC_Airport`,
`ABC_Location`, `ABC_State` WHERE `ABC_MechanicSkill`.`Mechanic_Id` = `ABC_Mechanic`.`Id`
AND `ABC_MechanicSkill`.`SkillCategory_Id` = `ABC_SkillCategory`.`Id` AND
`ABC_MechanicSkill`.`SkillProficiencyRating_Number` = `ABC_SkillProficiencyRating`.`Number`
AND `ABC_Mechanic`.`Airport_Id` = `ABC_Airport`.`Id` AND `ABC_Airport`.`Location_Id` =
`ABC_Location`.`Id` AND `ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_State`.`Name` =
'Ohio' AND `ABC_SkillCategory`.`Name` = 'Fan Blade Replacement' AND
`ABC_SkillProficiencyRating`.`Number` = '4' LIMIT 0, 500;

Rows: 1

| Name | Name | Number | Name |
|---------------|-----------------------|--------|------|
| Wendy Darling | Fan Blade Replacement | 4 | Ohio |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 08:22 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_Location`.`City`, `ABC_State`.`Name`, SUM(`ABC_Mechanic`.`Salary`)
FROM `ABC_Mechanic`, `ABC_Airport`, `ABC_Location`, `ABC_State` WHERE
`ABC_Mechanic`.`Airport_Id` = `ABC_Airport`.`Id` AND `ABC_Airport`.`Location_Id` =
`ABC_Location`.`Id` AND `ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_State`.`Name` =
'Ohio' GROUP BY `ABC_Location`.`City` LIMIT 0, 500;

Rows: 3

| City | Name | SUM(`ABC_Mechanic`.`Salary`) |
|-----------|------|------------------------------|
| Cleveland | Ohio | 188000.00 |
| Columbus | Ohio | 402300.00 |
| Dayton | Ohio | 198000.00 |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 08:31 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT Name, AcronymIATA, SizeAcres FROM `ABC_Airport` WHERE SizeAcres = (SELECT MAX(SizeAcres) FROM `ABC_Airport`) LIMIT 0, 500;

Rows: 1

| Name | AcronymIATA | SizeAcres |
|------------------------------|-------------|-----------|
| Denver International Airport | DEN | 34000 |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 08:40 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_Airport`.`Name`, `ABC_Airport`.`AcronymIATA`,
`ABC_Airport`.`SizeAcres`, `ABC_Location`.`City` FROM `ABC_Airport`, `ABC_Location` WHERE
`ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`City` = 'New York' AND
SizeAcres = (SELECT MAX(`ABC_Airport`.`SizeAcres`) FROM `ABC_Airport`, `ABC_Location`
WHERE `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND `ABC_Location`.`City` = 'New
York') LIMIT 0, 500;

Rows: 1

| Name | AcronymIATA | SizeAcres | City |
|---------------------------------------|-------------|-----------|----------|
| John F. Kennedy International Airport | JFK | 4930 | New York |

SQL result

Host: localhost

Database: jhmaiademora01

Generation Time: Dec 09, 2015 at 08:38 AM

Generated by: phpMyAdmin 3.4.5 / MySQL 5.5.16

SQL query: SELECT `ABC_Airport`.`Name`, `ABC_Airport`.`AcronymIATA`,
`ABC_Airport`.`SizeAcres`, `ABC_State`.`Name` FROM `ABC_Airport`, `ABC_Location`,
`ABC_State` WHERE `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND
`ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_State`.`Name` = 'New York' AND
SizeAcres = (SELECT MAX(`ABC_Airport`.`SizeAcres`) FROM `ABC_Airport`, `ABC_Location`,
`ABC_State` WHERE `ABC_Airport`.`Location_Id` = `ABC_Location`.`Id` AND
`ABC_Location`.`State_Id` = `ABC_State`.`Id` AND `ABC_State`.`Name` = 'New York') LIMIT 0, 500;

Rows: 1

| Name | AcronymIATA | SizeAcres | Name |
|---------------------------------------|-------------|-----------|----------|
| John F. Kennedy International Airport | JFK | 4930 | New York |