

CPSC 203

Database

Week 1 Lab1

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Why are Spreadsheets not sufficient?

- Large Data with up to hundred thousands records
 - Hard to edit a specific record
 - Hard to search
 - Hard to understand information

- Storage problem
 - e.g. city: string of how many characters?
 - Subject to typing Error
 - e.g. Calgary, Calagary
 - What about this?

Employee No	Name	City ID
0011	John..	1
0012	Juila ..	1
0013	Bill ..	2
0014	Ashley ..	7
0015	Lensia..	7
0016	Mark..	3
0017	Janna ...	4
0018	Sara ..	1
0019	Nadin ..	2
0020	Tom ..	5
0021	Nicole ...	1
0022	George ..	2
0023	John ..	3
0024	Sara ..	4

Employee Table

City ID	City Name
1	Calgary
2	Ottawa
3	Regina
4	Toronto
5	Waterloo
6	Hamilton
7	Edmonton

City Table

- By using cross referencing:
 - Instead of using a string of 20 characters (city) in hundred of thousands of records (Employees), I used only 2 characters (City ID)
 - Efficient storage space
 - This is gives more speed in searching as well
 - Does not allow typing errors
 - Cities can be usually provided using combo box
 - This is the way used when you fill your profile while making new email or new account.
 - Do you remember how to implement this in Excel?

Think!!

- If I want to make another table for Employee's salary, what is the best reference to Employee table?
 - ID, name, phone, address, city, or country

Tables

Key Field

Fields

Employee No	Name	City ID
0011	John..	1
0012	Juila ..	1
0013	Bill ..	2
0014	Ashley ..	7
0015	Lensia..	7
0016	Mark..	3
0017	Janna ...	4
0018	Sara ..	1
0019	Nadin ..	2
0020	Tom ..	5
0021	Nicole ...	1
0022	George ..	2
0023	John ..	3
0024	Sara ..	4

Records

Query

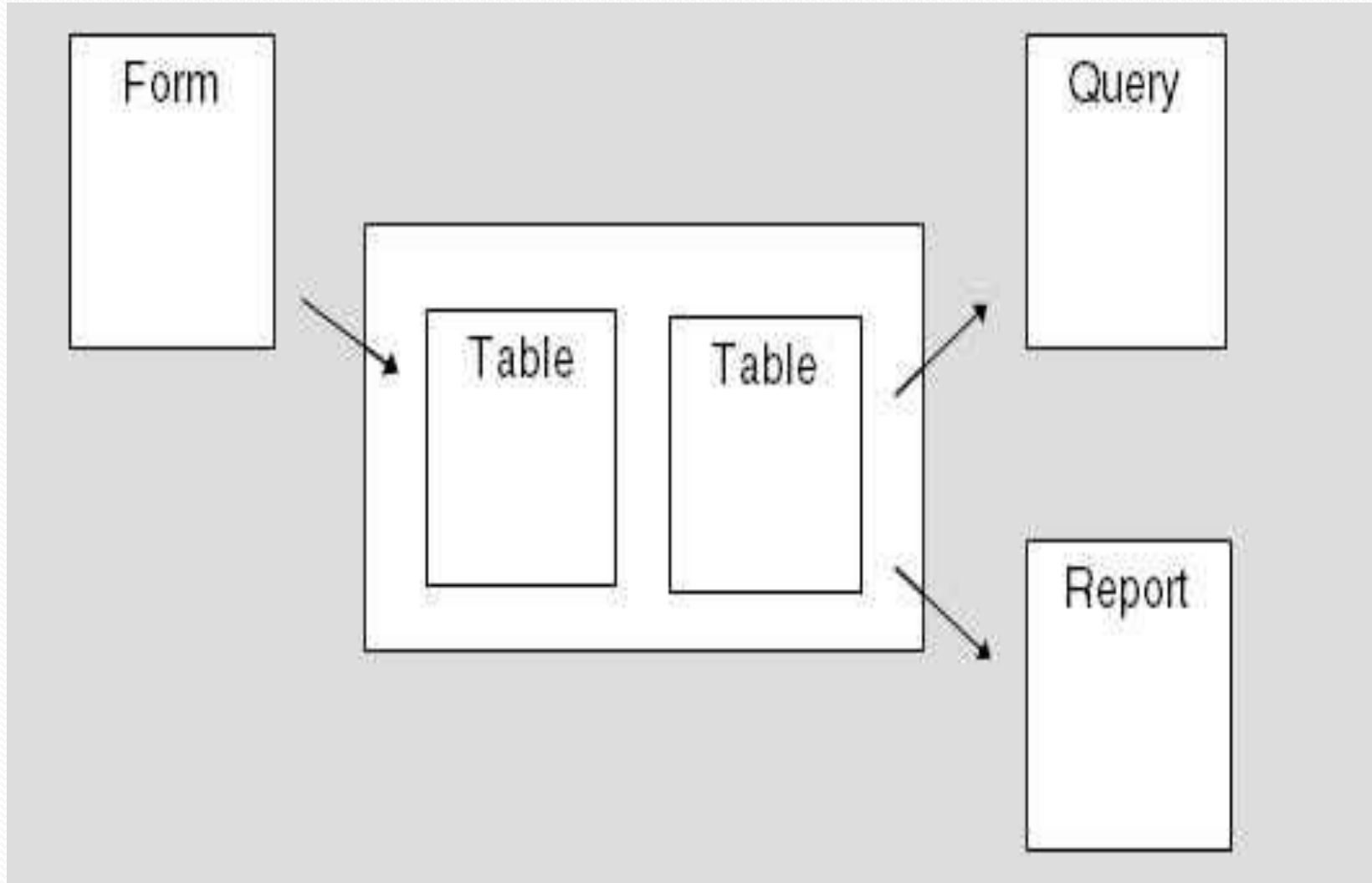
- Ask for information about the data
 - e.g.
 - Get all employees living in Calgary
 - Get all employees with salary > 5000\$

Form

- Allow editing information in tables easily
 - e.g. The form that appears to you when you want to edit your profile information

Reports

- Display information in the table in easy-read format
 - Something like pivot tables in Excel



Address Book

<u>PersonID</u>	<u>Firstname</u>	<u>Lastname</u>	email	birthday
101	Rick	<u>Edwards</u>	rick.edwards@email.com	7-Mar-68
102	Jimmy	Foster	jimmy.foster@email.com	28-Feb-87
103	Nathan	<u>Garcia</u>	nathan.garcia@email.com	2-Jun-82
104	Louise	Knight	louise.knight@email.com	12-Dec-67
105	Gary	<u>Knox</u>	gary.knox@email.com	1-Dec-92
106	Rafael	Lorenz	rafael.lorenz@email.com	9-Jul-78
107	Veronica	Page	veronica.page@email.com	9-Sep-45
108	Hector	<u>Sanchez</u>	hector.sanchez@email.com	1-Apr-00
109	Billy	Smith	billy.smith@email.com	30-Aug-99
110	<u>Ricardo</u>	<u>Stuckey</u>	ricardo.stuckey@email.com	17-Nov-55
111	Ken	Weaver	ken.weaver@email.com	13-May-45
112	<u>Lorenzo</u>	West	lorenzo.west@email.com	1-Jun-84

Address Book (**PersonID:key**, Firstname, Lastname, Email, Birthday)

PersonID	Firstname	Lastname	email	birthday	CityID	ProvinceID
101	Rick	Edwards	rick.edwards@email.com	7-Mar-68	1	2
102	Jimmy	Foster	jimmy.foster@email.com	28-Feb-87	3	1
103	Nathan	Garcia	nathan.garcia@email.com	2-Jun-82	9	2
104	Louise	Knight	louise.knight@email.com	12-Dec-67	2	5
105	Gary	Knox	gary.knox@email.com	1-Dec-92	6	3
106	Rafael	Lorenz	rafael.lorenz@email.com	9-Jul-78	5	1
107	Veronica	Page	veronica.page@email.com	9-Sep-45	4	1
108	Hector	Sanchez	hector.sanchez@email.com	1-Apr-00	7	5
109	Billy	Smith	billy.smith@email.com	30-Aug-99	11	4
110	Ricardo	Stuckey	ricardo.stuckey@email.com	17-Nov-55	10	5
111	Ken	Weaver	ken.weaver@email.com	13-May-45	8	5
112	Lorenzo	West	lorenzo.west@email.com	1-Jun-84	12	6

CityID	City
1	Calgary
2	Ottawa
3	Vancouver
4	Richmond
5	Surrey
6	Regina
7	Markham
8	Hamilton
9	Edmonton
10	Toronto
11	Winnipeg

ProvinceID	Province
1	British Columbia
2	Alberta
3	Saskatchewan
4	Manitoba
5	Ontario
6	Quebec

Example: Orders Table

- Imagine that you have some products that are being ordered by customers.
 - We need customers' information
 - e.g. Name, address, phone, etc..
 - We need products information
 - e.g. Name, price, quantity in stock
 - We need orders information
 - e.g. data, quantity, status
- Can you make these information in one table?
 - Think in appropriate design

Customer ID	Name	Email	Address	Phone number
1	Rick Edwards	r_edwards@hotmail.com	Calgary	403-111111
2	Jimmy Foster	dead_duck@yahoo.com	Calgary	403-524323
3	Nathan Garcia	nathan87@gmail.com	Alberta	n/a
4	Louise Knight	darkknight@yahoo.com	UoC Campus	403-987343
5	Ken Weaver	kenw@ucalgary.ca	12th Ave, Calgary	403-876234
6	Billy Smith	b.smith@gmail.com	Glacier, 24 Ave, Calgary	403-234124

Item ID	Name	Price	Current Quantity in Stock
1	Seagate 1TB HDD	150\$	10
2	2GB memory stick	20\$	5
3	17" Sony LCD monitor	200\$	12
4	Ipod	90\$	150

Order ID	Customer ID	Item ID	Quantity	Date	Status
1	1	1	1	2 03-Jun-08	Delivered Successfully
2	1	1	2	1 12-Jul-08	Cancelled
3	4	3	3	1 01-Aug-08	Delivered Successfully
4	6	1	1	1 10-Sep-08	Processing