

Univerza v Ljubljani  
Fakulteta za računalništvo  
in informatiko



# Predmet: Osnove podatkovnih baz

Modul:  
Poizvedovanje s QBE

Gradivo:  
v.2015



# Vsebina

- Kaj je QBE
- Poizvedovanje s QBE v MS Access
- QBE orodja za MySQL



# QBE – Query-By-Example...

- Vizualen način dostopa do podatkov s podajanjem primerov...povemo, kaj nas zanima.
- QBE originalno razvil **IBM** v **70' letih**. Včasih zelo popularen. Ponujajo mnogi SUPB.
- Možno prehajanje iz vizualne v tekstovno poizvedbo in obratno.



# Primer QBE v MS ACCESS...

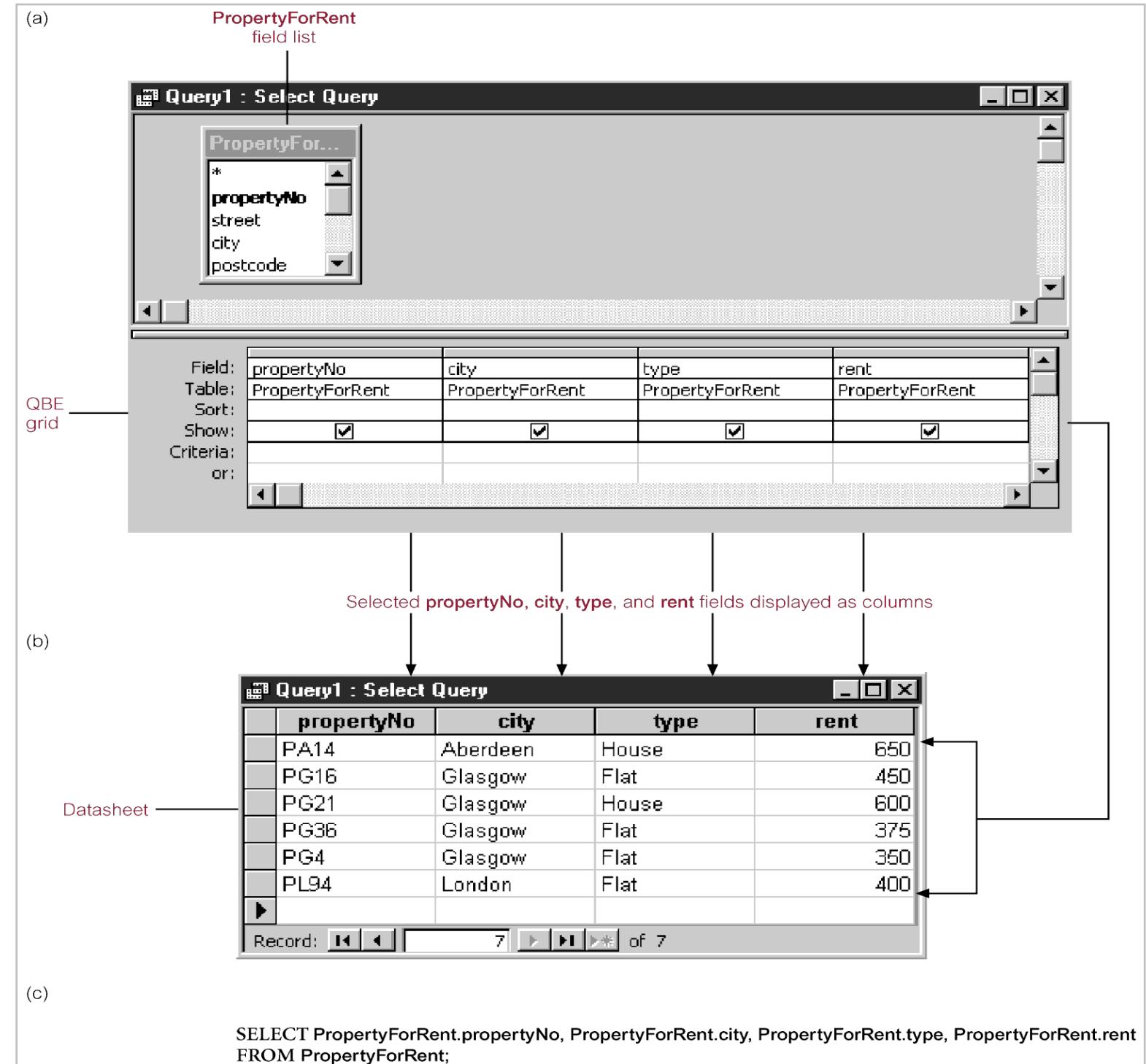
- QBE v MS Access uporabnikom omogoča:
  - Poizvedovati po podatkih ene ali več tabel.
  - Določiti stolpce, ki jih želimo imeti v odgovoru (projekcija).
  - Določiti kriterije za izbiro vrstic (selekcija).
  - Izvajati izračune nad podatki v tabelah.
  - Dodajati in brisati zapise.
  - Spreminjati vrednosti v poljih.
  - Kreirati nove tabele in stolpce.
  - Izvajati posebne poizvedbe.



# Primer QBE v MS ACCESS...

- Primeri iz Accessa

# Poizvedba SELECT



# Poizvedba SELECT, določitev kriterija

(a)

QBE grid

Field:	propertyNo	city	type	rent
Table:	PropertyForRent	PropertyForRent	PropertyForRent	PropertyForRent
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		"Glasgow"		Between 350 And 450
or:				

Criteria on same row so  
combined using *And* operator

Criteria using  
*And* operator

(b)

Datasheet

Records that satisfy criteria

	propertyNo	city	type	rent
	PG4	Glasgow	Flat	350
	PG36	Glasgow	Flat	375
	PG16	Glasgow	Flat	450

(c)

```
SELECT PropertyForRent.propertyNo, PropertyForRent.city, PropertyForRent.type, PropertyForRent.rent
FROM PropertyForRent
WHERE (((PropertyForRent.city) = "Glasgow") AND ((PropertyForRent.rent) Between 350 And 450));
```

# Poizvedba SELECT, stik tabel

(a)

Join-line  
representing 1:\*  
relationship

PrivateOwner field list      PropertyForRent field list

Query1 : Select Query

PrivateOwner

*
ownerNo
fName
IName
address

PropertyFor...

postcode
type
rooms
rent
ownerNo

QBE grid

Field:	fName	IName	propertyNo	city
Table:	PrivateOwner	PrivateOwner	PropertyForRent	PropertyForRent
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:				
or:				

(b)

Selected PrivateOwner fields displayed as columns

Selected PropertyForRent fields displayed as columns

Datasheet

Query1 : Select Query

	fName	IName	propertyNo	city
Tina	Murphy	PG4	Glasgow	
Joe	Keogh	PA14	Aberdeen	
Carol	Farrel	PL94	London	
Carol	Farrel	PG21	Glasgow	
Tony	Shaw	PG36	Glasgow	
Tony	Shaw	PG16	Glasgow	

Record: 1 2 3 4 5 6 7 8 9 ... of 7

(c)

```
SELECT PrivateOwner.fName, PrivateOwner.IName, PropertyForRent.propertyNo, PropertyForRent.city
FROM PrivateOwner INNER JOIN PropertyForRent ON PrivateOwner.ownerNo =
PropertyForRent.ownerNo;
```

# Poizvedba SELECT, izračunana polja

(a)

Field:	propertyNo	city	type	Yearly Rent: [rent]*12
Table:	PropertyForRent	PropertyForRent	PropertyForRent	
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:				
or:				

Expression to create  
a new field called  
**Yearly Rent** and to  
calculate a value for  
each property

(b)

Query1 : Select Query				
	propertyNo	city	type	Yearly Rent
	PA14	Aberdeen	House	7800
	PG16	Glasgow	Flat	5400
	PG21	Glasgow	House	7200
	PG36	Glasgow	Flat	4500
	PG4	Glasgow	Flat	4200
	PL94	London	Flat	4800

Selected **propertyNo**, **city**, and **type** fields  
displayed as columns

Creates new column  
called **Yearly Rent**

(c)

```
SELECT PropertyForRent.propertyNo, PropertyForRent.city, PropertyForRent.type, [rent]*12 AS [Yearly Rent]
FROM PropertyForRent;
```

# Poizvedba SELECT, uporaba agregatov

(a)

QBE grid

Field:	city	propertyNo
Table:	PropertyForRent	PropertyForRent
Total:	Group By	Count
Sort:		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

Group By on **city** field displayed as column

Count on **propertyNo** field displayed as column

(b)

Datasheet

Query1 : Select Query

	city	CountOfpropertyNo
▶	Aberdeen	2
	Glasgow	4
	London	1

Record: 1 of 3

(c)

```
SELECT PropertyForRent.city, Count(PropertyForRent.propertyNo) AS CountOfpropertyNo
FROM PropertyForRent
GROUP BY PropertyForRent.city;
```

# Poizvedba SELECT, uporaba parametrov

(a)

Field: fName IName propertyNo city  
Table: PrivateOwner PrivateOwner PropertyForRent PropertyForRent  
Sort:  
Show:  
Criteria: [Enter Owner's First name] [Enter Owner's Last Name]  
or:  
[ ] [ ] [ ] [ ]

(b)

Expression to create prompt for fName field  
Expression to create prompt for IName field

(c)

	fName	IName	propertyNo	city
1	Carol	Farrel	PL94	London
2	Carol	Farrel	PG21	Glasgow
3				

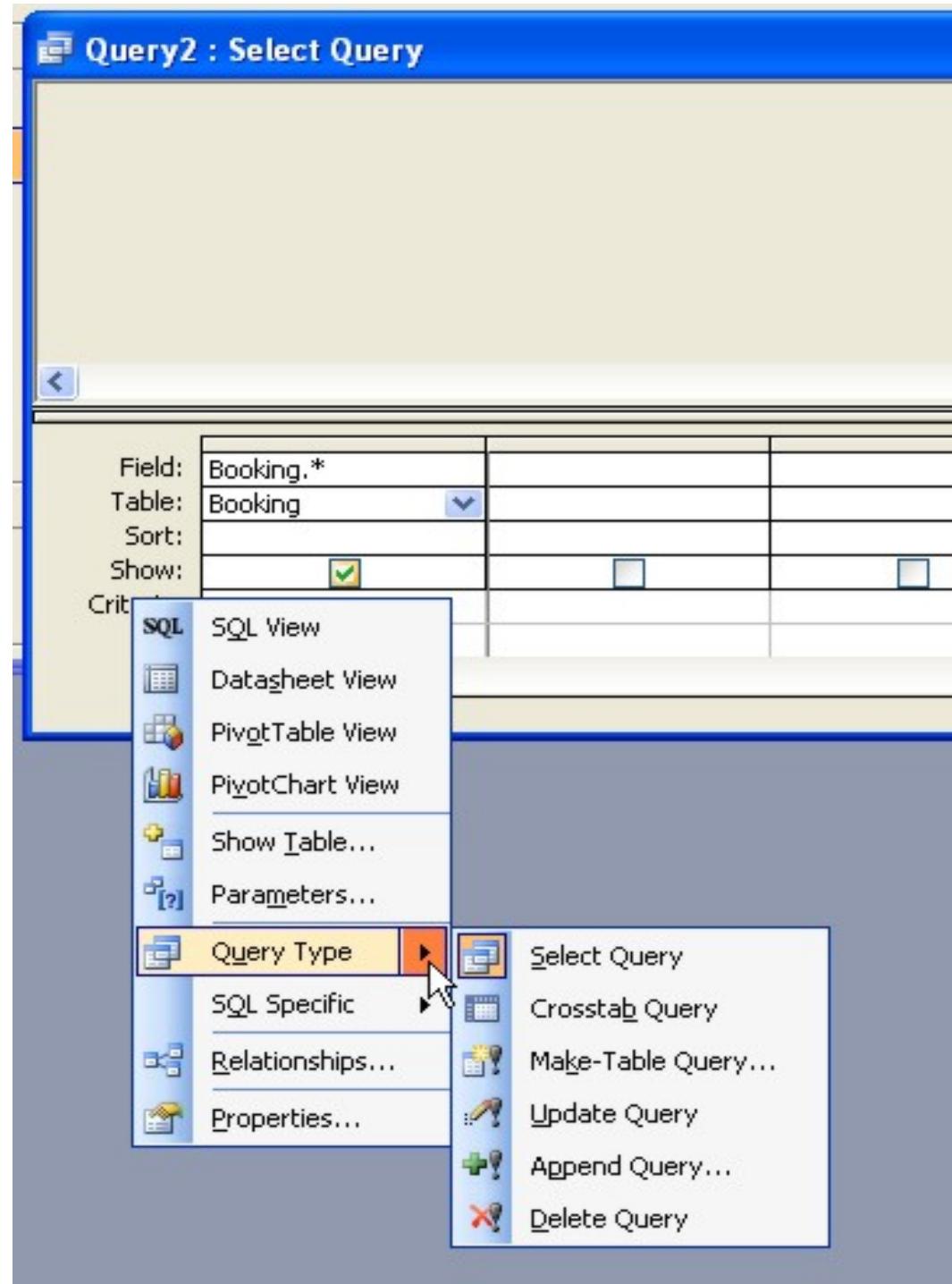
Record: 1 2 3 4 5 6 7 8 9 of 3

Records that satisfy criteria

(d)

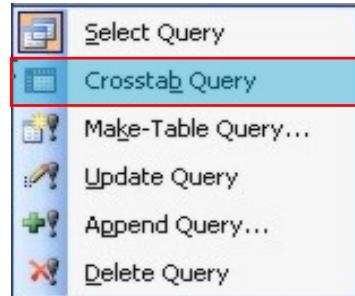
```
SELECT PrivateOwner.fName, PrivateOwner.IName, PropertyForRent.propertyNo, PropertyForRent.city
FROM PrivateOwner INNER JOIN PropertyForRent ON PrivateOwner.ownerNo = PropertyForRent.ownerNo
WHERE (((PrivateOwner.fName)=[Enter Owner's First Name]) AND ((PrivateOwner.IName)=[Enter
Owner's Last Name]));
```

# Posebne vrste SELECT poizvedb



# Poizvedba

## Crosstab



(a)

Field:	fName	IName	type	propertyNo
Table:	Staff	Staff	PropertyForRent	PropertyForRent
Total:	Group By	Group By	Group By	Count
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	or:			

Group By on **fName**, **IName**, and **type** fields displayed as columns      Count on **propertyNo** field displayed as column

(b)

Query1 : Select Query

	fName	IName	type	CountOfpropertyNo
▶	Ann	Beech	Bungalow	43
	Ann	Beech	Cottage	4
	Ann	Beech	Flat	45
	Ann	Beech	Mid-Terrace	26
	Ann	Beech	Semi-Detached	33
	David	Ford	Bungalow	7
	David	Ford	Cottage	2
	David	Ford	Flat	14
	David	Ford	Semi-Detached	42
	Mary	Howe	Bungalow	45
	Mary	Howe	Cottage	4
	Mary	Howe	Flat	31
	Mary	Howe	Mid-Terrace	2
	Mary	Howe	Semi-Detached	7

Record: 1 of 14

(c)

```

SELECT Staff.fName, Staff.IName, PropertyForRent.type, Count(PropertyForRent.propertyNo) AS CountOfpropertyNo
FROM Staff INNER JOIN PropertyForRent ON Staff.staffNo = PropertyForRent.staffNo
GROUP BY Staff.fName, Staff.IName, PropertyForRent.type;
    
```

(a)

propertyNo field provides values for property type columns

Field:	fName	IName	type	propertyNo
Table:	Staff	Staff	PropertyForRent	PropertyForRent
Total:	Group By	Group By	Group By	Count
Crosstab:	Row Heading	Row Heading	Column Heading	Value
Sort:				
Criteria:				
or:				

(b)

fName and IName fields provide values for row heading columns

type field provide values for column heading columns

Record: 1 of 3

	fName	IName	Bungalow	Cottage	Flat	Mid-Terrace	Semi-Detached
▶	Ann	Beech	43	4	45	26	33
	David	Ford	7	2	14		42
	Mary	Howe	45	4	31	2	7

(c)

```

TRANSFORM Count(PropertyForRent.propertyNo) AS CountOfpropertyNo
SELECT Staff.fName, Staff.IName
FROM Staff INNER JOIN PropertyForRent ON Staff.staffNo = PropertyForRent.staffNo
GROUP BY Staff.fName, Staff.IName
PIVOT PropertyForRent.type;
    
```

# Kreiranje novih tabel

(a) Name of new table  
Make Table  
Table Name: StaffCut  
Location of new table  
Current Database  
Another Database:  
File Name:

(b) Make-table QBE grid  
Field: staffNo fName lName position salary  
Table: Staff Staff Staff Staff Staff  
Sort:  
Show:       
Criteria:  
or:  
Selected fields of Staff table for new StaffCut table

(c) Microsoft Access  
You are about to paste 6 row(s) into a new table.  
Once you click Yes, you can't use the Undo command to reverse the changes.  
Are you sure you want to create a new table with the selected records?  
Yes No

If Yes  
StaffCut datasheet  
Selected columns copied from Staff table

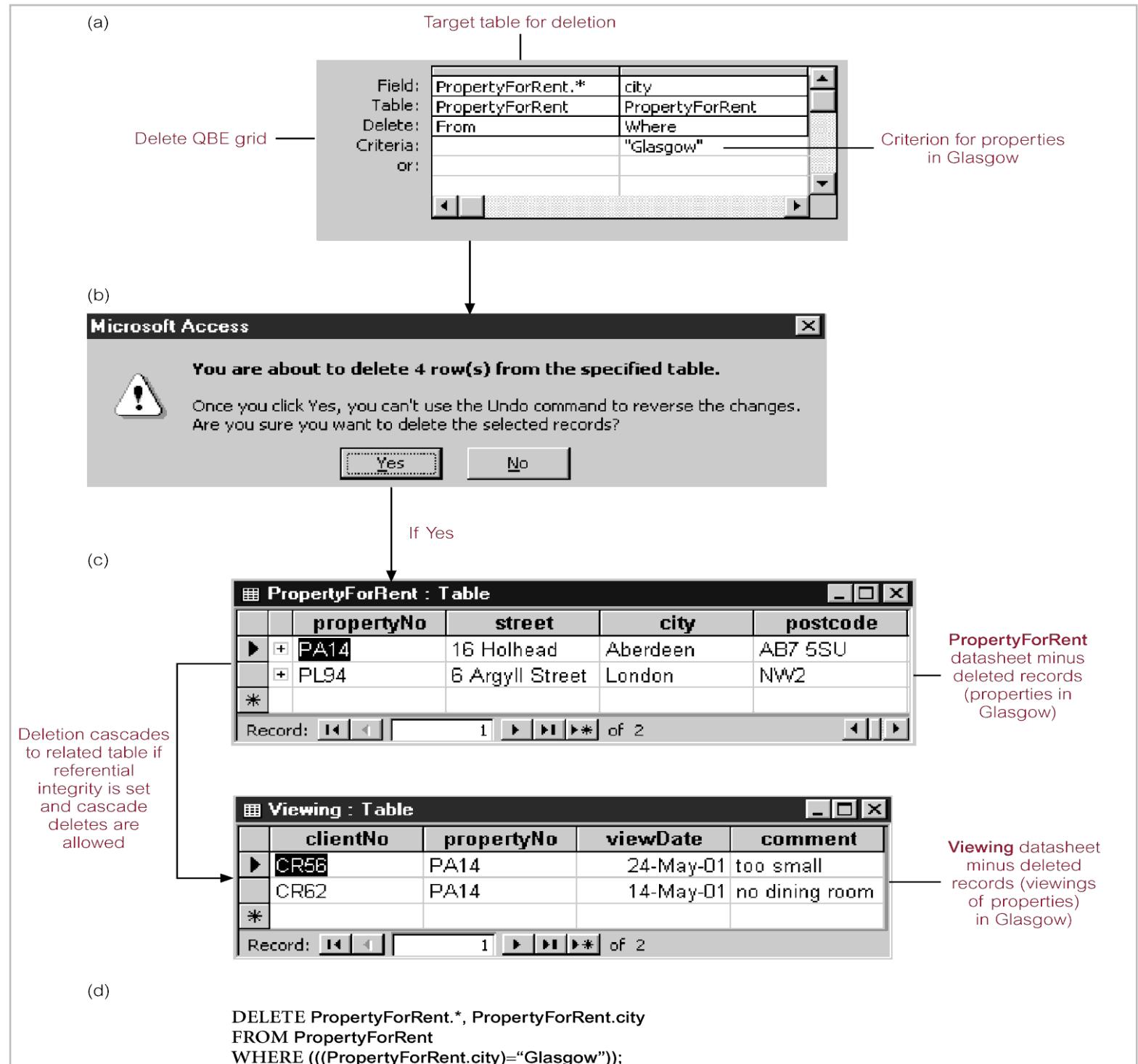
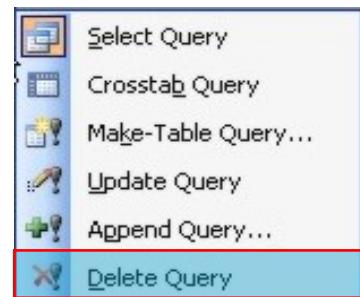
(d) StaffCut : Table  

	staffNo	fName	lName	position	salary
▶	SL21	John	White	Manager	30000
	SG37	Ann	Beech	Assistant	12000
	SG14	David	Ford	Supervisor	18000
	SA9	Mary	Howe	Assistant	9000
	SG5	Susan	Brand	Manager	24000
	SL41	Julie	Lee	Assistant	9000
*					

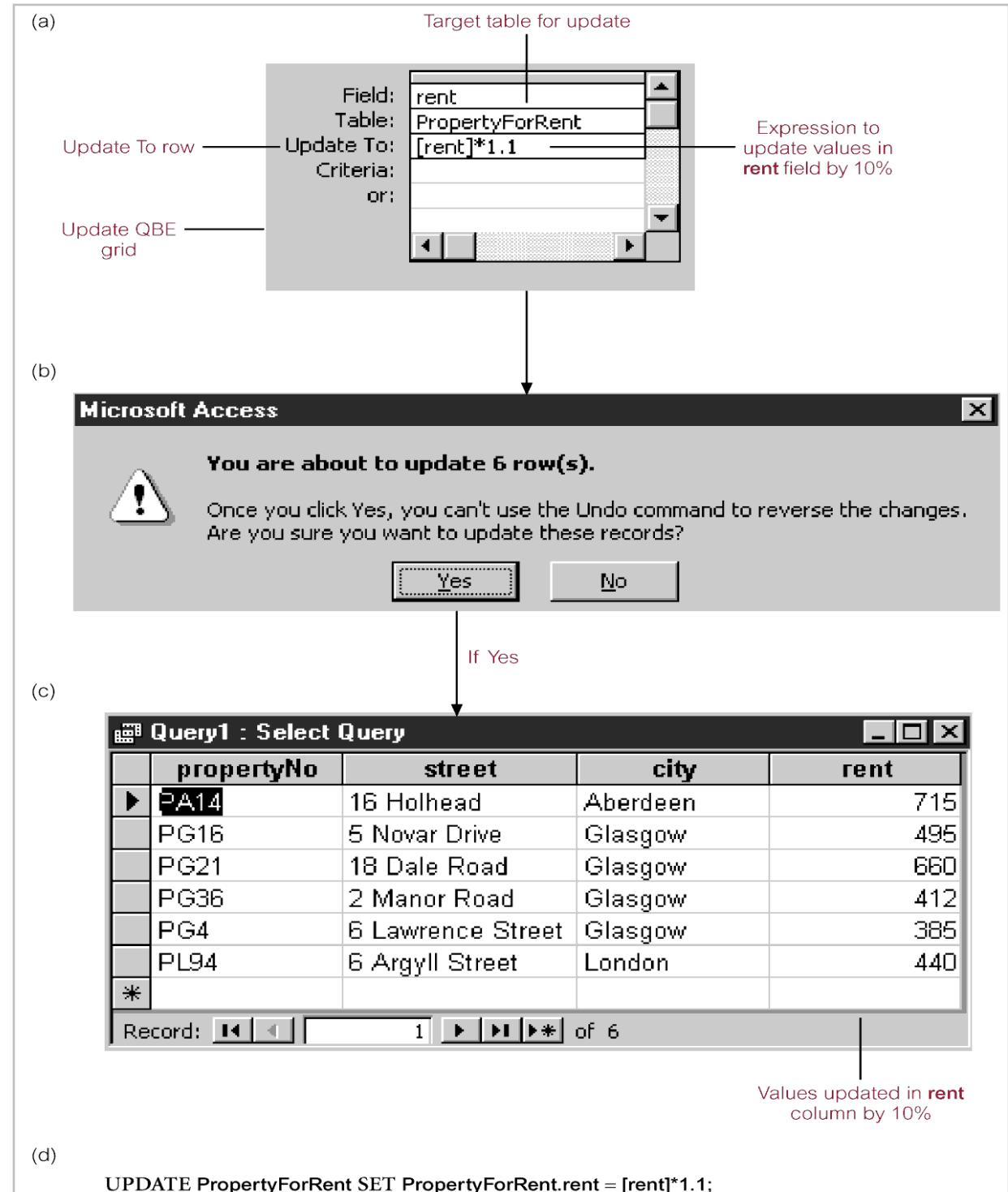
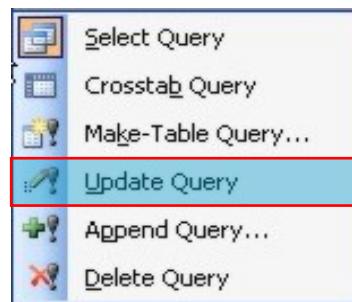
Record: 1 of 6

(e) SELECT Staff.staffNo, Staff.fName, Staff.lName, Staff.position, Staff.salary INTO StaffCut  
FROM Staff;

# Brisanje zapisov



# Spreminjanje zapisov





# QBE orodja za MySQL

- phpMyAdmin 
- dbForge Studio for MySQL  
<http://www.devart.com/dbforge/mysql/>
- FlySpeed SQL Query  
<http://www.activedbsoft.com/index.html>
- SQLyog MySQL  
<https://www.webyog.com/>
- ...



Active Database Software





# dbForge Studio for MySQL



## FlySpeed SQL Query - [Order Products\*]



Connection Query Edit Tools View Window Help



New Query



Northwind

Execute

## Northwind

Queries  
Order Products

Tables  
Employees  
Customers  
Categories  
Order Details  
Orders  
Products  
Shippers  
Suppliers

System Tables  
Table1

Views  
Ten Most Expensive Products  
Sales by Category  
Quarterly Orders  
Products by Category  
Products Above Average Price  
Product Sales for 1997  
Orders Qry  
Order Subtotals  
Order Details Extended

## Connections



Query Data View Print View Query Stats

## Main

**Products**

- \*
- ProductID
- ProductName
- SupplierID
- CategoryID
- QuantityPerUnit
- UnitPrice
- UnitsInStock
- UnitsOnOrder

**Order Det...**

- \*
- OrderID
- ProductID
- UnitPrice
- Quantity
- Discount

**Orders**

- \*
- OrderID
- CustomerID
- EmployeeID
- OrderDate
- RequiredDate
- ShippedDate

Output	Expression	Aggregate	Alias	Sort Type	Sort Order	Grouping	Criteria
<input checked="" type="checkbox"/>	Products.ProductName			Ascending	1		
<input checked="" type="checkbox"/>	[Order Details].Quantity						> 1000
<input checked="" type="checkbox"/>	Orders.OrderDate						

```

Select
    Products.ProductName,
    [Order Details].Quantity,
    Orders.OrderDate
From
    (Products Inner Join
        [Order Details] On Products.ProductID = [Order Details].Pr
        Inner Join
    Orders On Orders.OrderID = [Order Details].OrderID

```



# FlySpeed SQL Query



[\*\*FlySpeed DB Migrate\*\*](#)



[\*\*FlySpeed Data Export\*\*](#)



[\*\*FlySpeed SQL Query\*\*](#)



[\*\*Active Query Builder\*\*](#)

# FlySpeed SQL Query

The screenshot displays the FlySpeed SQL Query interface, which is a graphical tool for constructing complex SQL queries.

**Left Panel:** A tree view of the query structure under the "Main" node. It includes sections for Unions, Expressions, Objects, and Customers, each containing multiple sub-items.

**Middle Panel:** The main query editor area. It shows three tables: **Ord (Orders)**, **Det ([Order Details])**, and **Prod (Products)**. The **Ord** table has columns like OrderID, CustomerID, EmployeeID, etc. The **Det** table has columns like OrderID, ProductID, UnitPrice, etc. The **Prod** table has columns like ProductID, ProductName, SupplierID, etc. Relationships between the tables are indicated by lines connecting their primary keys (OrderID) to foreign keys (OrderID and ProductID).

**Bottom Panel:** A table showing the output columns and their definitions. The columns are:

Output	Expression	Aggregate	Alias	Sort Type	Sort Order	Grouping	Criteria
<input checked="" type="checkbox"/>	Ord.*						
<input type="checkbox"/>	Ord.CustomerID						In (Select c.CustomerId Fro...)
<input checked="" type="checkbox"/>							

**Right Panel:** A list of database objects under the "dbo" schema, categorized into Tables and Views. Tables include Categories, CustomerCustomerDemo, CustomerDemographics, Customers, dtproperties, Employees, EmployeeTerritories, Order Details, Orders, Products, Region, Shippers, Suppliers, Territories. Views include Alphabetical list of produ..., Category Sales for 1997, Current Product List, Customer and Suppliers I, Invoices, Order Details Extended, Order Subtotals, Orders Qry, Product Sales for 1997.

**Bottom Left:** The generated SQL code:

```
SELECT Ord.*  
FROM Orders Ord INNER JOIN  
[Order Details] Det ON Ord.OrderID = Det.OrderID INNER JOIN  
Products Prod ON Det.ProductID = Prod.ProductID  
WHERE Ord.CustomerID IN (SELECT c.CustomerId FROM Customers  
WHERE c.CustomerId LIKE 'A%')  
UNION  
SELECT *  
FROM Orders o  
WHERE o.CustomerID IN (SELECT c.CustomerId FROM Customers  
WHERE c.CustomerId LIKE 'B%')
```