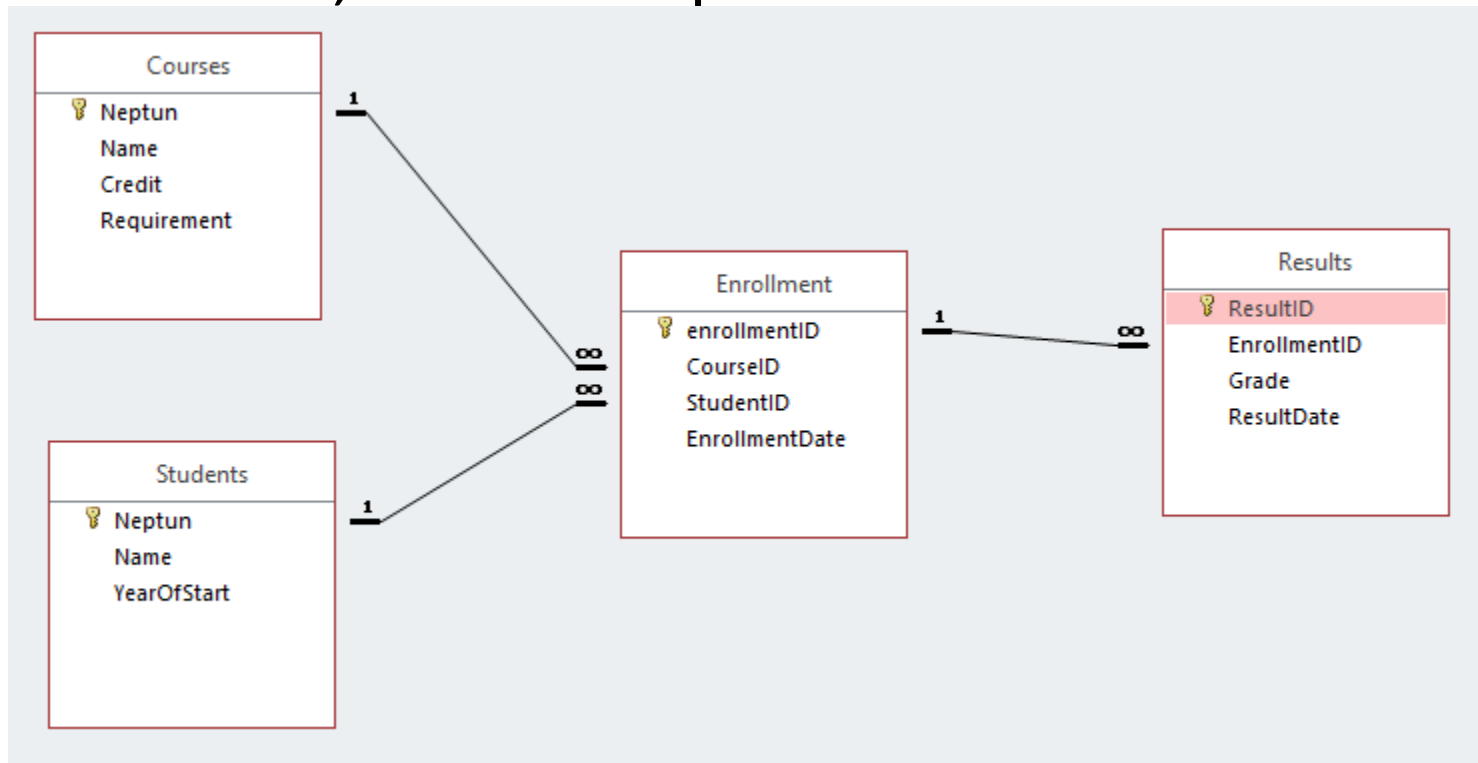


Database Systems

Technical practice for building queries

Structure

- University catalogue managing students, courses, enrollments and results
- Access file already includes structure, relationships



Structure

Courses		
Field Name	Data Type	Description (Optional)
Neptun	Short Text	
Name	Short Text	
Credit	Number	
Requirement	Short Text	

Field Properties

General Lookup

Field Size	13
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Allow Zero Length	Yes
Indexed	Yes (No Duplicates)
Unicode Compression	No
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

Students		
Field Name	Data Type	Description (Optional)
Neptun	Short Text	
Name	Short Text	
YearOfStart	Number	

Field Properties

General Lookup

Field Size	6
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Allow Zero Length	Yes
Indexed	Yes (No Duplicates)
Unicode Compression	No
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

Enrollment		
Field Name	Data Type	Description (Optional)
EnrollmentID	AutoNumber	
CourseID	Short Text	
StudentID	Short Text	
EnrollmentDate	Date/Time	

Field Properties

General Lookup

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

Results		
Field Name	Data Type	Description (Optional)
ResultID	AutoNumber	
EnrollmentID	Number	
Grade	Number	
ResultDate	Date/Time	

Field Properties

General Lookup

Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

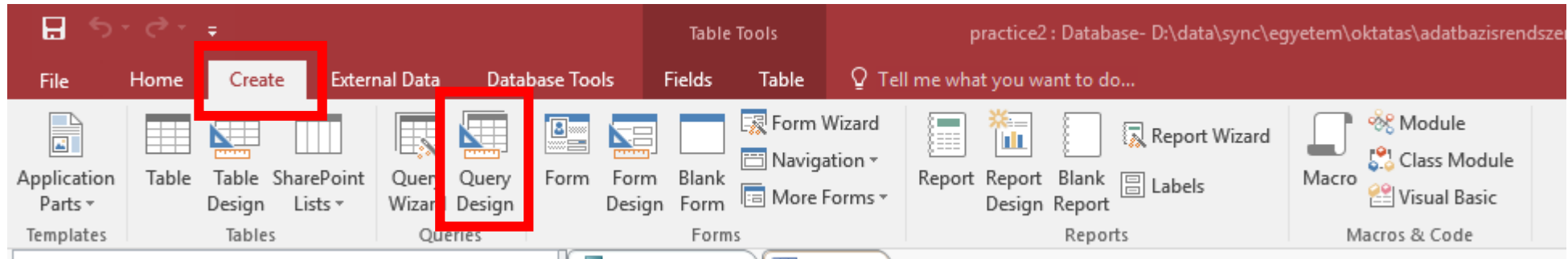
Data

- Access file already includes data

Courses					
	Neptun	Name	Credit	Requirement	Click to Add
+	BMEEOAFAS42	Field Course o	6	test	
+	BMEEOAFAT41	Surveying I.	4	semester	
+	BMEEOAFAT42	Surveying II.	1	semester	
+	BMEEOAFD001	Advanced Mat	6	test	
+	BMEEODHAG1	Technician trai	4	test	
+	BMEEODHAI41	Infrastructural	3	semester	
+	BMEEODHAS41	Design of Struc	6	semester	
+	BMEEODHAS42	Industrial Prac	3	test	
+	BMEEODHASD	Diploma work	2	test	
+	BMEEODHAV0	Planner bureau	3	test	
+	BMEEODHAV0	Buildingcal, re	2	test	
+	BMEEODHMSD	Diploma work	4	test	
+	BMEEODHMOV0	Researcher, de	3	semester	
+	BMEEOEEMA30	Building Mater	5	semester	
+	BMEEOEEMA7L	Construction M	3	semester	
+	BMEEOEEMA-A	Building Const	3	semester	
+	BMEEOEEMAS4	Construction M	4	semester	
+	BMEEOEEMAS4	Building Const	4	test	
+	BMEEOEEMAT4	Chemistry of C	4	semester	
+	BMEEOEEMAT4	Civil Engineeri	6	semester	
+	BMEEOEEMAT4	Building Const	5	test	
+	BMEEOEEMPRE	Technical Draw	2	semester	
+	BMEEOEEMS901	Building Mater	6	test	
+	BMEEOFTAT41	CAD for Civil E	4	semester	
+	BMEEOFTAT43	Geoinformatic	6	semester	
+	BMEEOFTMKT3	Database Mani	6	semester	
+	BMEEOFTPRE1	Basic Informat	5	semester	
+	BMEEOGMAT4	Geology	2	test	
+	BMEEOGMAT4	Soil Mechanics	1	test	
+	BMEEOGMAT4	Earthworks	1	test	
+	BMFFOGMAT4	Foundation Fn	2	test	

Queries – general I.

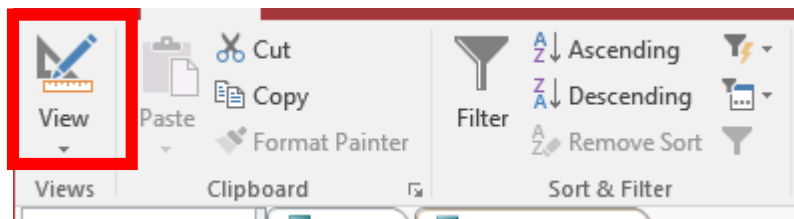
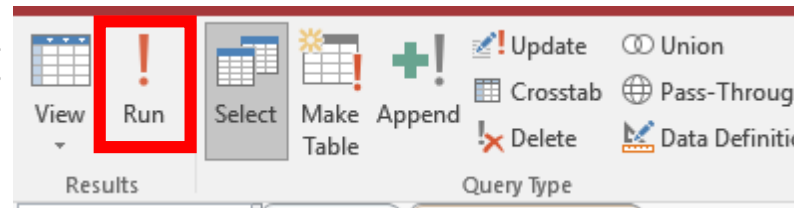
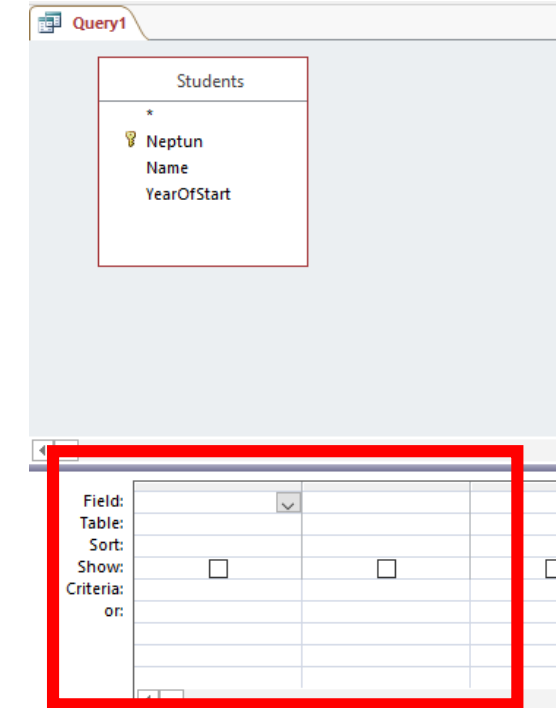
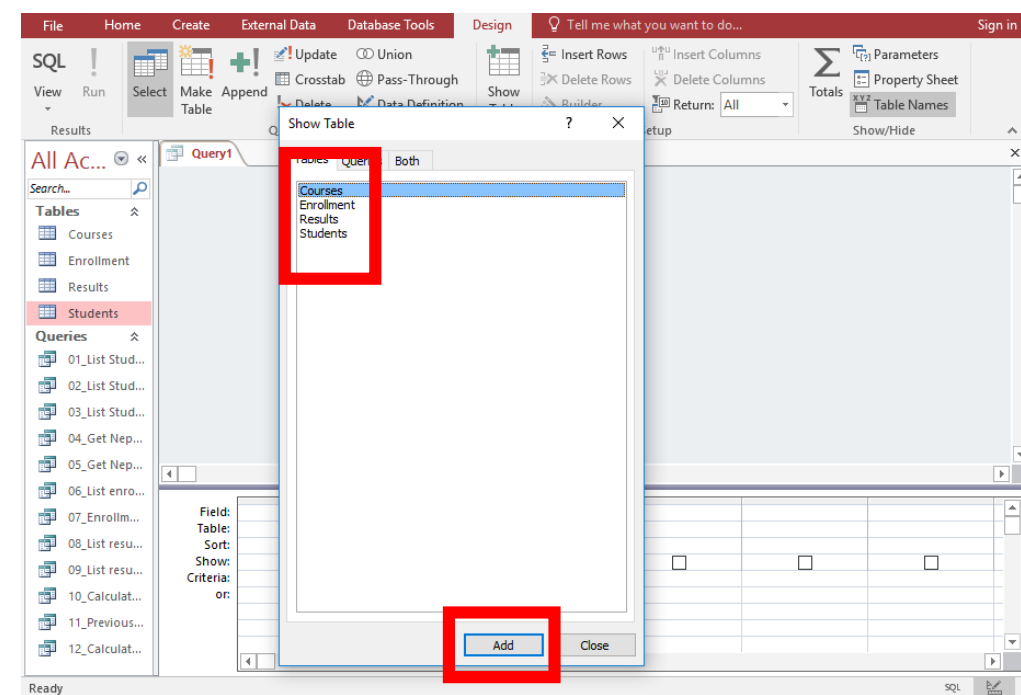
- Select “Create” at Ribbon menu



- Then select “Query Design”

Queries – general II.

- Popup window appears to select queried tables
 - Select only relevant ones and hit “add”
- Table structure is displayed
- Select fields, conditions, grouping and many other things in the bottom area
- Hit “Run” at top to see result
- Hit “Design View” to edit



Queries - 01

- List all students
 - Single table is used: Students
 - Single attribute is listed: Name
- Result is not sorted

01_List Students

Students

*

Neptun

Name

YearOfStart

Field:	Name
Table:	Students
Sort:	
Show:	<input checked="" type="checkbox"/>
Criteria:	
or:	

01_List Students

Name
ElijahBarton
JefferyJohnstc
KendraBoyd
CarrieLogan
MalcolmSulliv
EthelMaxwell
JennieDawson
DrewGibbs
DorothyHopkin
JoeyHughes
LesterPerkins
RonBishop
AbelNguyen
StaceyShelton
AlexReynolds
AngeloPetersc
ReginaWheele
WillieBennett
BrandyHill
SylvesterCasey

Queries - 02

- Sort the previous list

02_List Students order by name

Students
*
Neptun
Name
YearOfStart

Field: Name
Table: Students
Sort: Ascending
Show: ☒
Criteria:
or:

02_List Students order by name

Name	
AbeInNguyen	
AlexReynolds	
AliceIngram	
AngeloPetersc	
BobbieSparks	
BrandyHill	
CarrieLogan	
ClaytonMason	
DawnFleming	
DorothyHopki	
DrewGibbs	
EileenGibson	
ElijahBarton	
EthelMaxwell	
EvanBridges	
EvaStokes	
FrancesPrice	
GayleGomez	
GenevieveWil	

Queries - 03

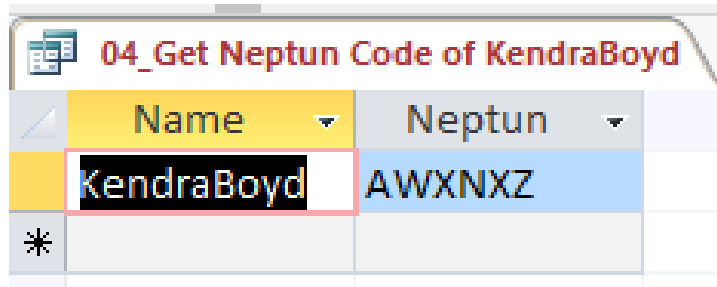
- List all students who started in 2016
 - Only single field is displayed
 - Filtering criteria is given on a different field

03_List Students started in 2016	
Name	
CarrieLogan	
GayleGomez	
LeoMcgee	
BobbieSparks	
WillieBennett	
SalvatoreRicha	
HugoBarrett	
RochelleLittle	
*	

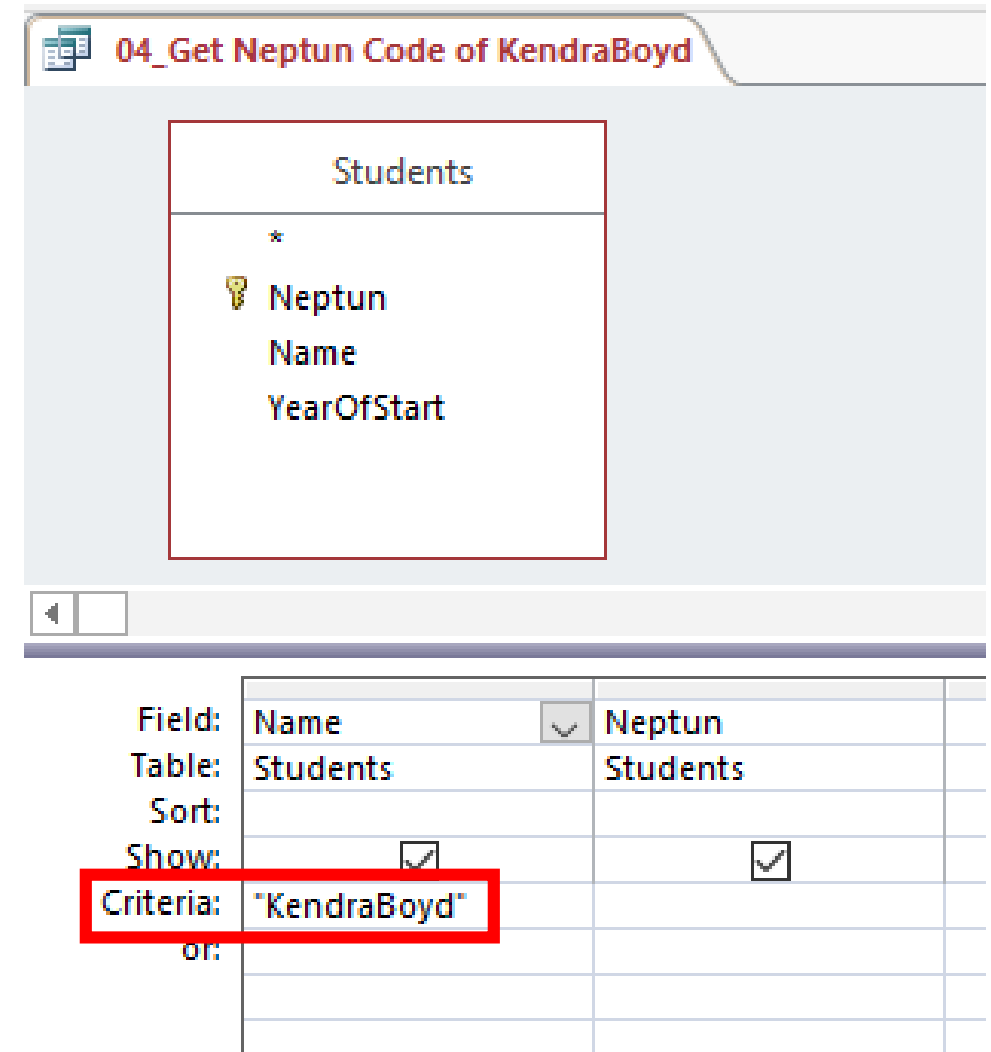
03_List Students started in 2016		
Students		
*		
Neptun		
Name		
YearOfStart		
Field:	Name	YearOfStart
Table:	Students	Students
Sort:		
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:	2016	
or:		

Queries - 04

- Get Neptun Code of “KendraBoyd”
 - Two field is displayed
 - Single criteria is given, criteria is quoted



04_Get Neptun Code of KendraBoyd	
Name	Neptun
KendraBoyd	AWXNXZ
*	



04_Get Neptun Code of KendraBoyd	
Students	
*	
Neptun	
Name	
YearOfStart	

Field:	Name	Neptun
Table:	Students	Students
Sort:		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	"KendraBoyd"	
or:		

Queries - 05

- Get Neptun Codes of all students with name of Boyd
 - Criteria has to be extended by “Like” keyword
 - “*” joker character was used to fit any characters

05_Get Neptun code of all Boyds (name ends with Boyd)

	Name	Neptun		
	KendraBoyd	AWXNXZ		
	OwenBoyd	KMSGAK		
*				

05_Get Neptun code of all Boyds (name ends with Boyd)

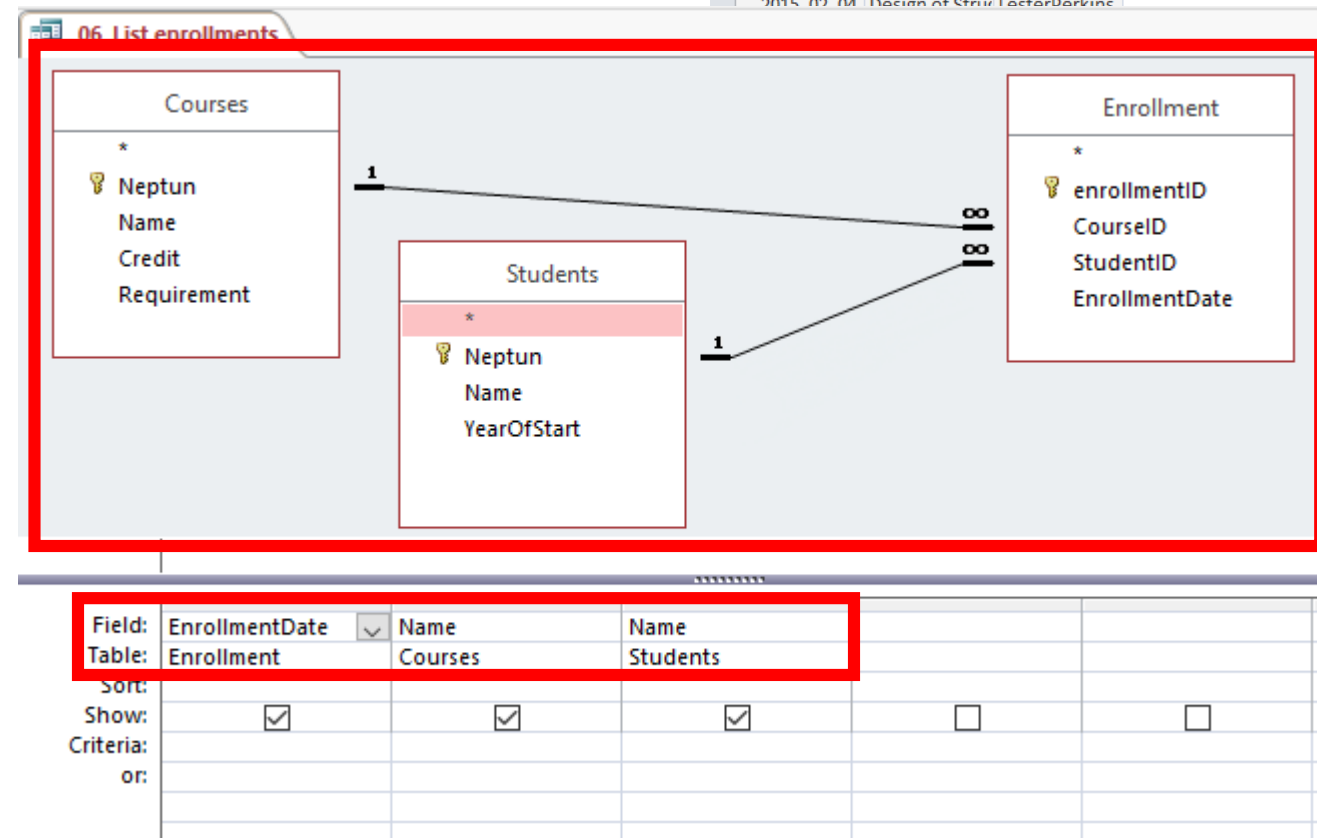
Students	
*	
Neptun	
Name	
YearOfStart	

Field:	Name	Neptun
Table:	Students	Students
Sort:		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	Like '*Boyd'	
or:		

Queries - 06

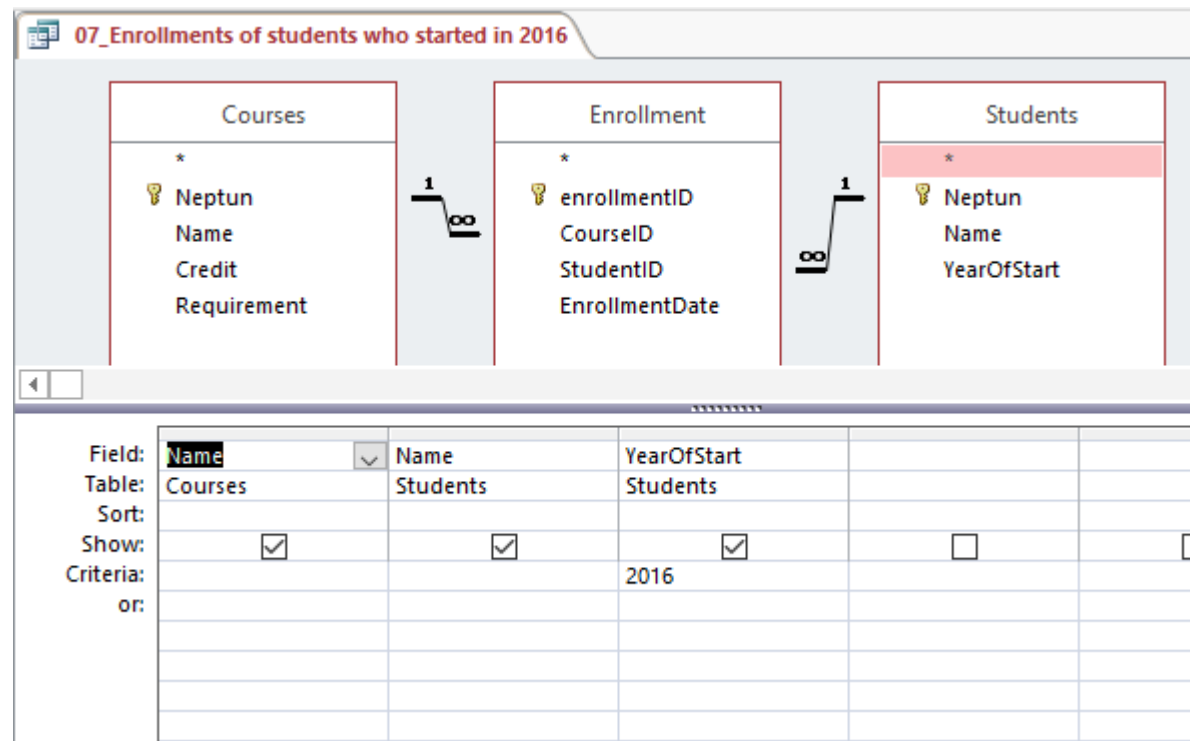
- List all enrollments (all courses, all students, any year)
 - Multiple table are used
 - Joins came from relationships
 - No dangling rows are displayed

EnrollmentID	Courses.Name	Students.Name
2016. 03. 30.	Analysis of Statics	GayleGomez
2016. 07. 28.	Reinforced Concrete	JamieFord
2015. 12. 09.	Geoinformatic	SalvatoreRichards
2015. 06. 15.	Technical Drawing	SylvesterCasey
2014. 07. 13.	Dynamics of Structures	LesterPerkins
2016. 02. 12.	Bridges and Infrastructure	RoyPatrick
2014. 01. 03.	Hydrology	SylvesterCasey
2013. 09. 12.	Structural Analysis	MalcolmSullivan
2015. 03. 07.	Hydraulics I.	WillieBennett
2014. 06. 23.	Building Calculations, re	ScottMaldonado
2012. 11. 16.	Earthworks	DorothyHopkins
2013. 10. 10.	Water resources	LesterPerkins
2016. 07. 26.	Earthworks	BrandyHill
2013. 05. 09.	Researcher, design	EileenGibson
2014. 07. 31.	Foundation Engineering	JamieFord
2013. 11. 11.	Chemistry of Construction	RoyPatrick
2013. 11. 09.	RC and Masonry	MosesStevens
2015. 04. 18.	Chemistry of Construction	RonBishop
2015. 04. 08.	Finite Element Analysis	LesterPerkins
2015. 02. 04.	Design of Structures	LesterPerkins



Queries - 07

- Previous list filtered on students who started in 2016
 - Filtering is performed on students starting year and not enrollment date

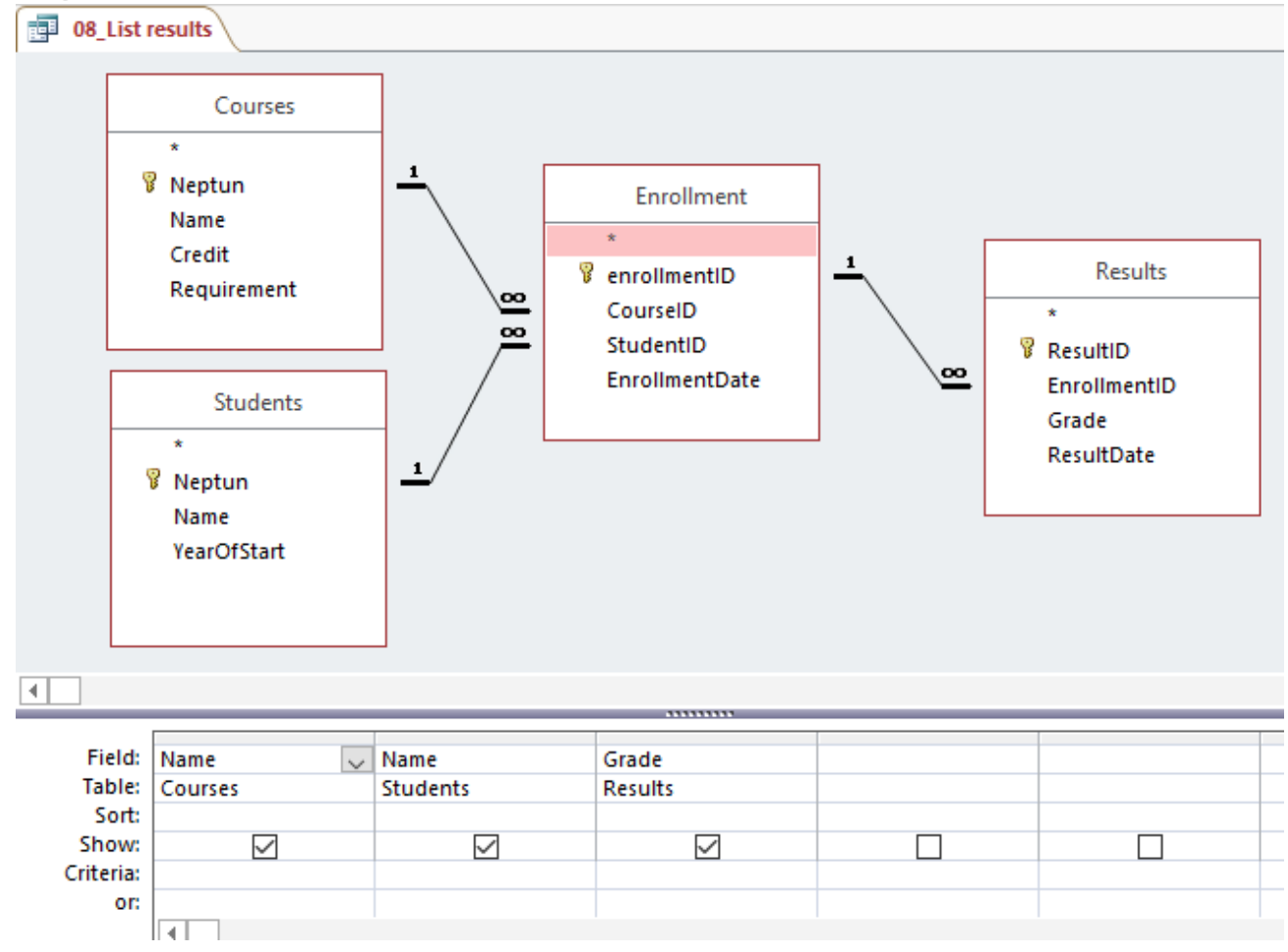


07_Enrollments of students who started in 2016		
Courses.Name	Students.Name	YearOfStart
Basis of Statics	GayleGomez	2016
Geoinformatic	SalvatoreRicha	2016
Hydraulics I.	WillieBennett	2016
Advanced Mec	BobbieSparks	2016
Construction M	LeoMcgee	2016
Hydrology	HugoBarrett	2016
RC and Masonr	HugoBarrett	2016
Urban and Reg	HugoBarrett	2016
Construction M	BobbieSparks	2016
Industrial Prac	LeoMcgee	2016
Basis of Statics	CarrieLogan	2016
Steel Buildings	LeoMcgee	2016
Researcher, de	GayleGomez	2016
Water resource	BobbieSparks	2016
CAD for Civil E	SalvatoreRicha	2016

Queries - 08

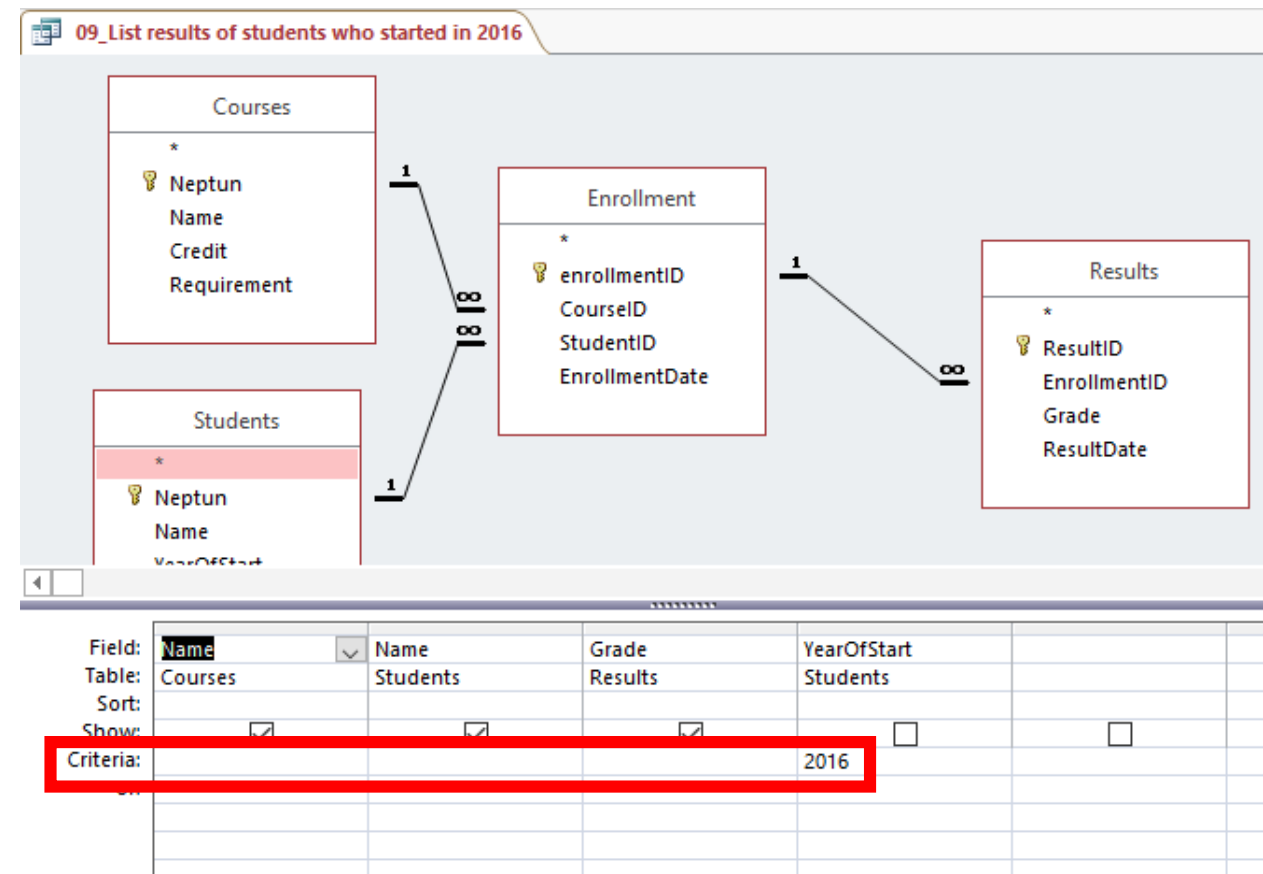
- List all results with corresponding students and courses
 - No dangling rows are included

08_List results		
Courses.Name	Students.Name	Grade
Basis of Statics	GayleGomez	3
Reinforced Concrete	JamieFord	2
Reinforced Concrete	JamieFord	2
Geoinformatics	SalvatoreRichards	5
Dynamics of Structures	LesterPerkins	4
Bridges and Infrastructure	RoyPatrick	1
Bridges and Infrastructure	RoyPatrick	1
Hydrology	SylvesterCasey	3
Hydrology	SylvesterCasey	4
Structural Analysis	MalcolmSullivan	4
Structural Analysis	MalcolmSullivan	5
Structural Analysis	MalcolmSullivan	5
Hydraulics I.	WillieBennett	3
Hydraulics I.	WillieBennett	1
Buildingcal, re	ScottMaldonado	5
Water resource	LesterPerkins	1
Water resource	LesterPerkins	4
Earthworks	BrandyHill	1
Researcher, de	EileenGibson	1



Queries - 09

- List results of students, who started in 2016
 - Filtering criteria on single rows is still available and must not be displayed
 - Multiple results may occur, no filtering on last one or best one

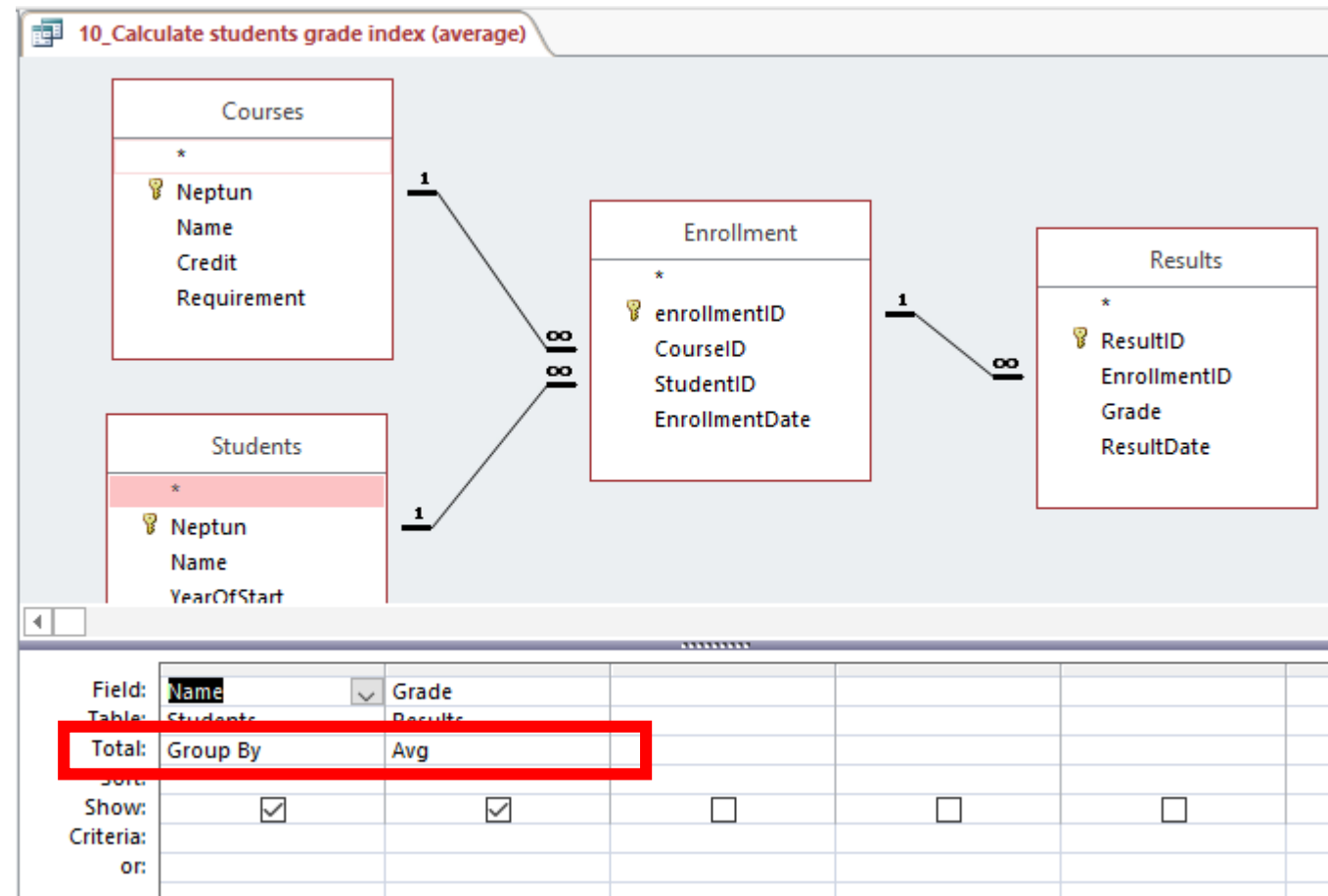


09_List results of students who started in 2016

Courses.Name	Students.Name	Grade
Basis of Statics	GayleGomez	3
Geoinformatic	SalvatoreRicha	5
Hydraulics I.	WillieBennett	3
Hydraulics I.	WillieBennett	1
Advanced Mec	BobbieSparks	5
Advanced Mec	BobbieSparks	3
Hydrology	HugoBarrett	2
RC and Masoni	HugoBarrett	1
RC and Masoni	HugoBarrett	3
RC and Masoni	HugoBarrett	2
Urban and Reg	HugoBarrett	1

Queries - 10

- Calculate students grade index (average)
 - Group by name
 - All displayed and not aggregated field must be grouped
 - Aggregated fields might have aliases
 - Without filtering on retakes, so result is not totally correct



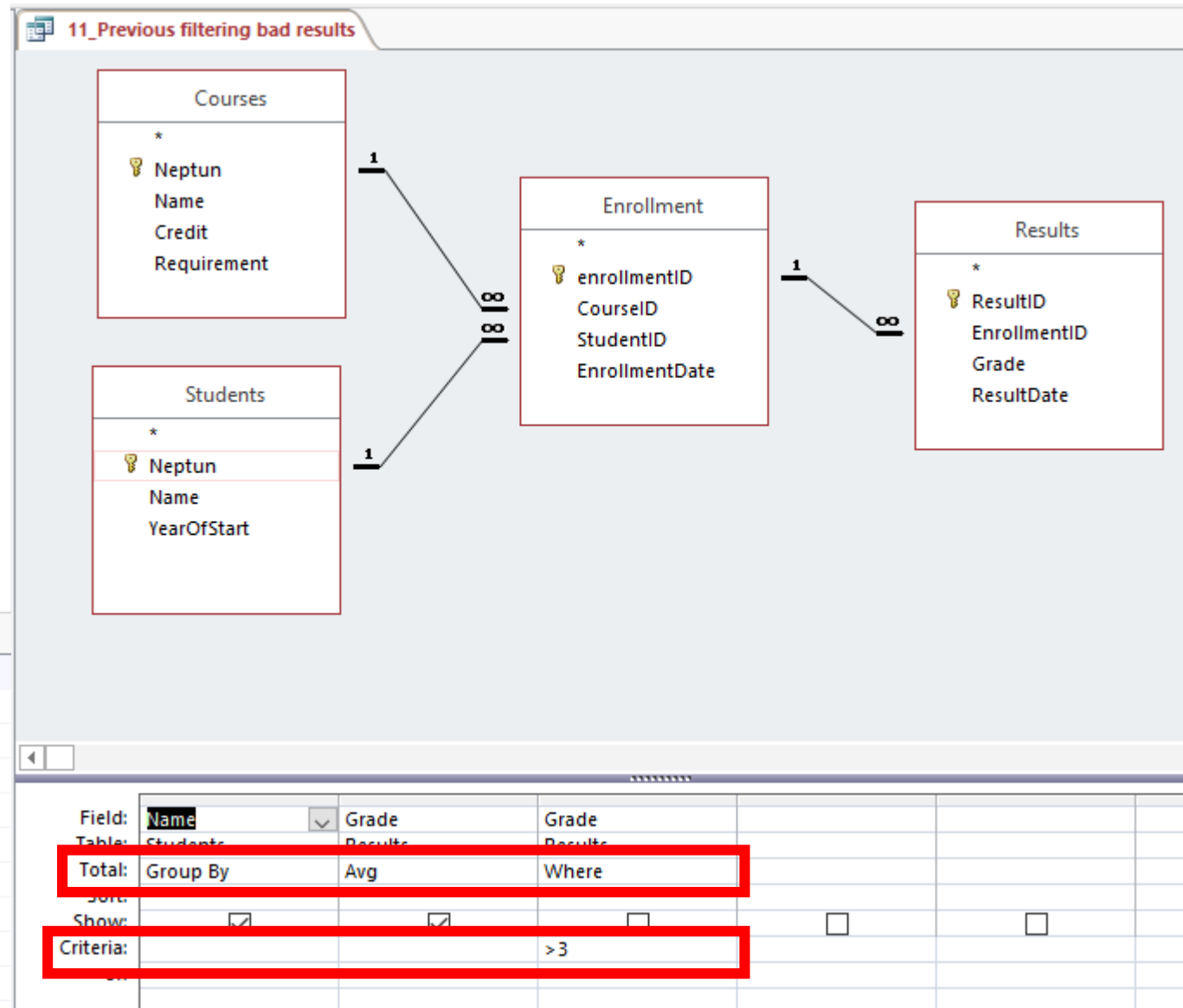
10_Calculate students grade index (average)

Name	AvgOfGrade
AlexReynolds	3,2
AliceIngram	3,66666666666667
AngeloPeterson	3,2
BobbieSparks	2,6
BrandyHill	1
CarrieLogan	3,33333333333333
ClaytonMason	3,66666666666667
DawnFleming	1,66666666666667
DorothyHopkins	1,85714285714286
DrewGibbs	2,5

Queries - 11

- Previous but bad grades are filtered
 - Only source (before aggregation) rows are filtered

11_Previous filtering bad results		
Name	AvgOfGrade	
AlexReynolds	5	
AliceIngram	4,5	
AngeloPeterson	4,33333333333333	
BobbieSparks	5	
CarrieLogan	4	
ClaytonMason	4,75	
DorothyHopkins	4	
DrewGibbs	4	
EileenGibson	4,5	
ElijahBarton	5	
EvanBridges	4,33333333333333	
EvaStokes	4	
FrancesPrice	5	
GayleGomez	4,33333333333333	
GuadalupeFuller	5	
HugoBarrett	5	



Queries - 12

- Queries 10 extended by aggregated result filtering
 - Students with bad index are filtered

12_Calculate students grade index, filtering week students	
Name	AvgOfGrade
AlexReynolds	3,2
AliceIngram	3,66666666666667
AngeloPeterson	3,2
CarrieLogan	3,33333333333333
ClaytonMason	3,66666666666667
DrewGibbs	3,5
EvanBridges	3,8
FrancesPrice	3,4
GuadalupeFuller	5
JamieFord	3,16666666666667
JeanAdkins	3,2
JoeyHughes	3,54545454545455
JorgeGrant	3,66666666666667
LeoMcgee	3,85714285714286
LesterPerkins	3,22222222222222
MalcolmSullivan	3,28571428571429

