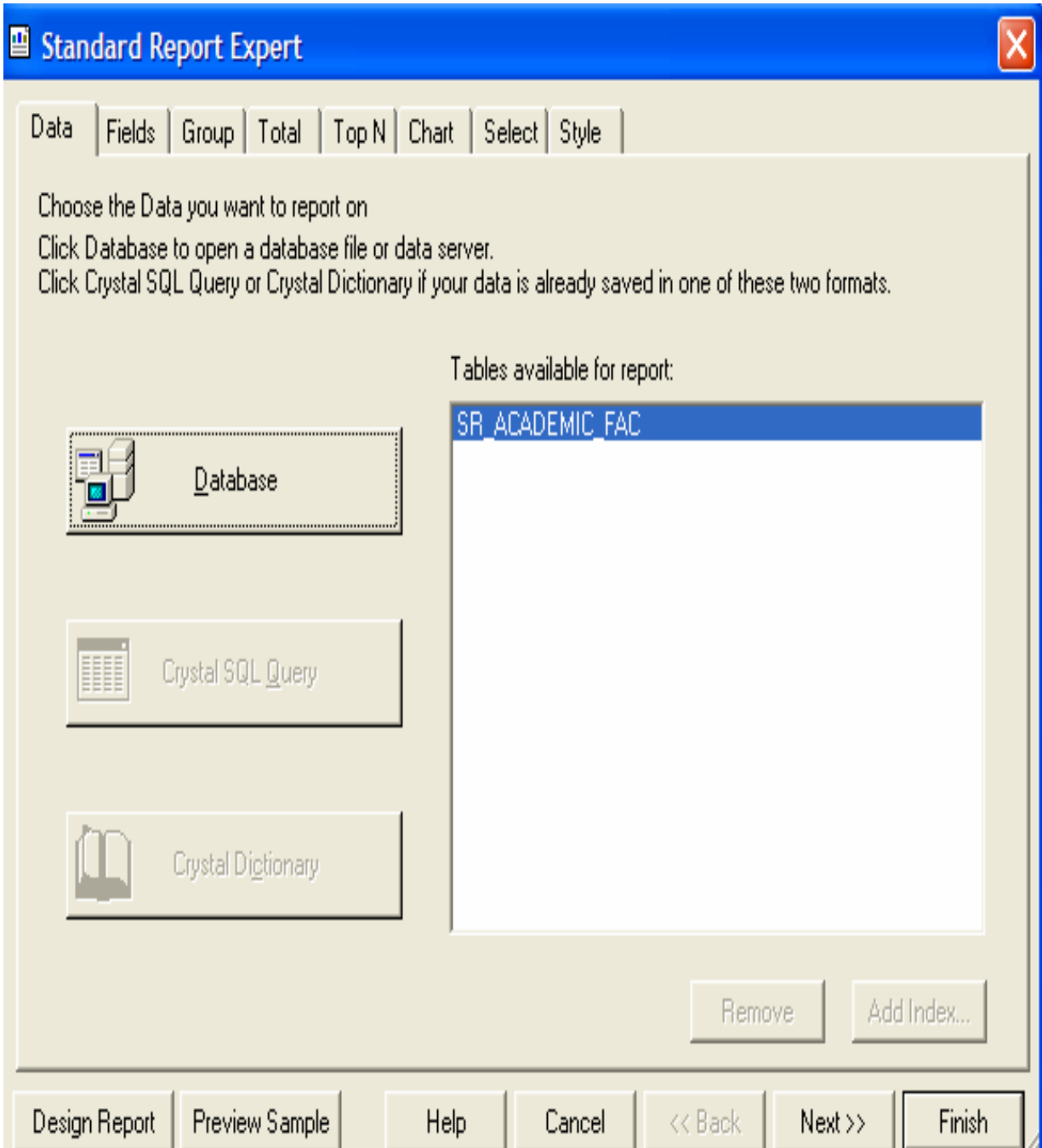
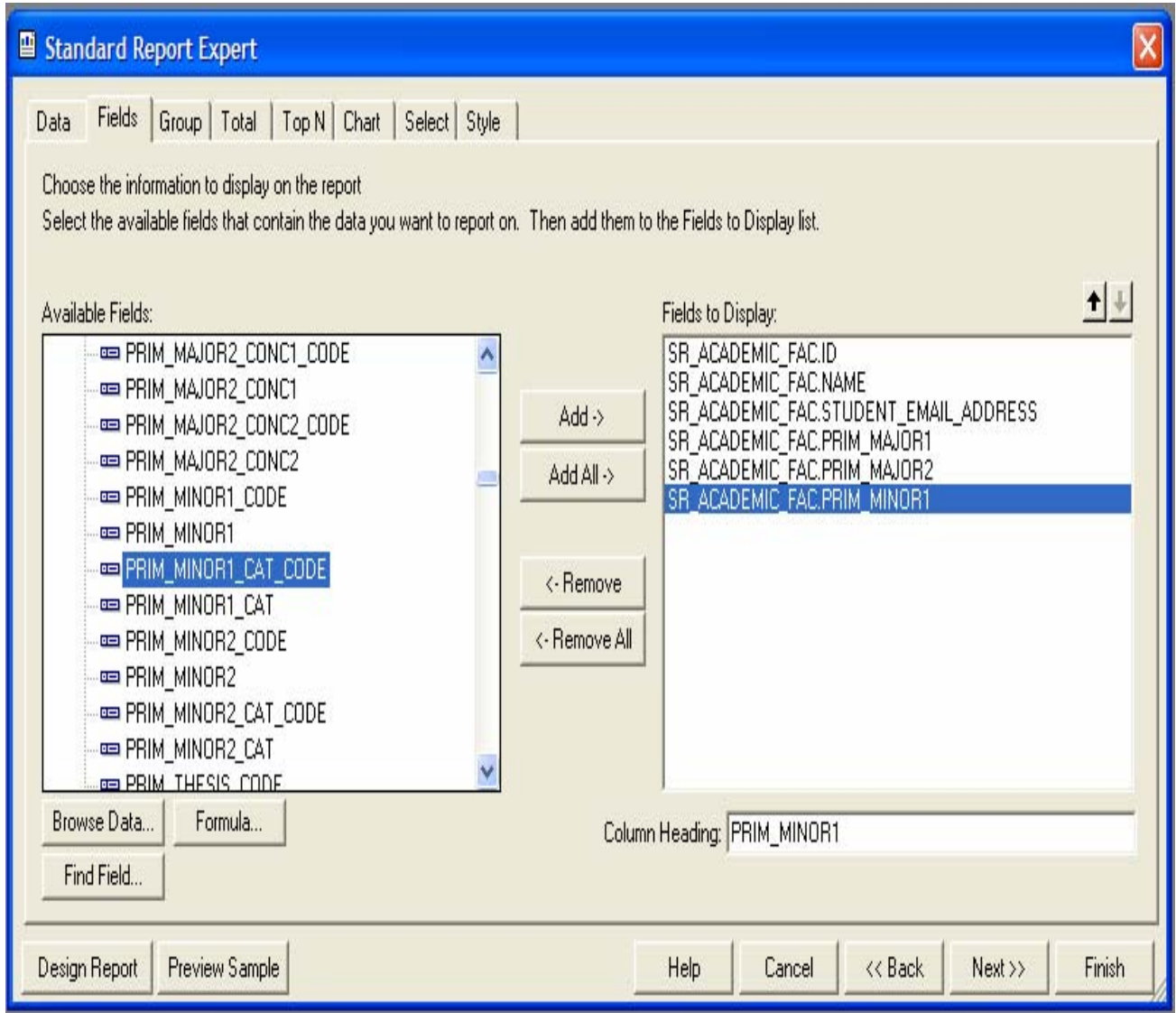


From 'Database' select the **SR\_ACADEMIC\_FAC** view



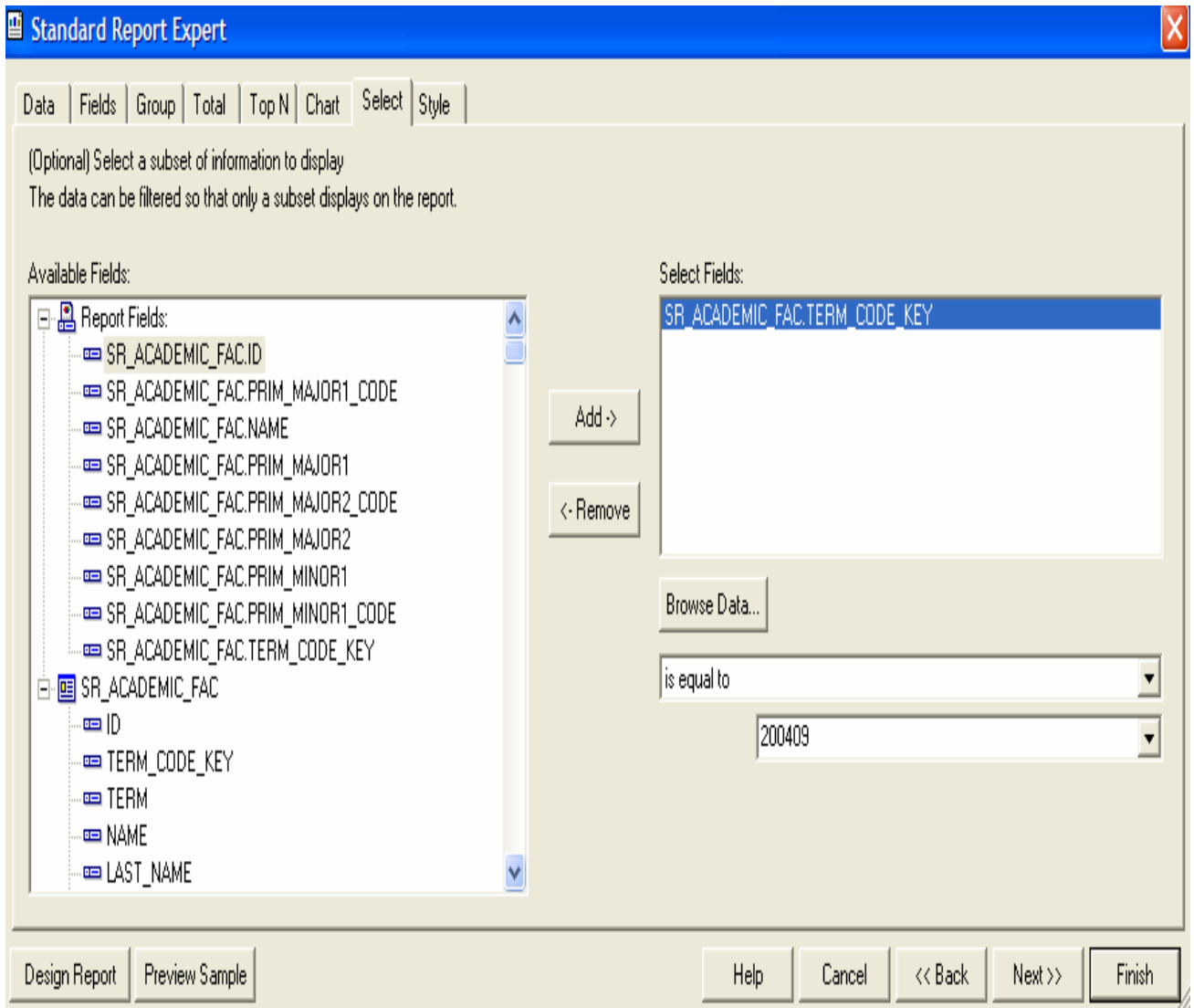
For this query, we need to display the following columns in the report:

- a) ID
- b) Name
- c) Student\_Email\_Address
- d) Prim\_Major1
- e) Prim\_Major2
- f) Prim\_Minor1



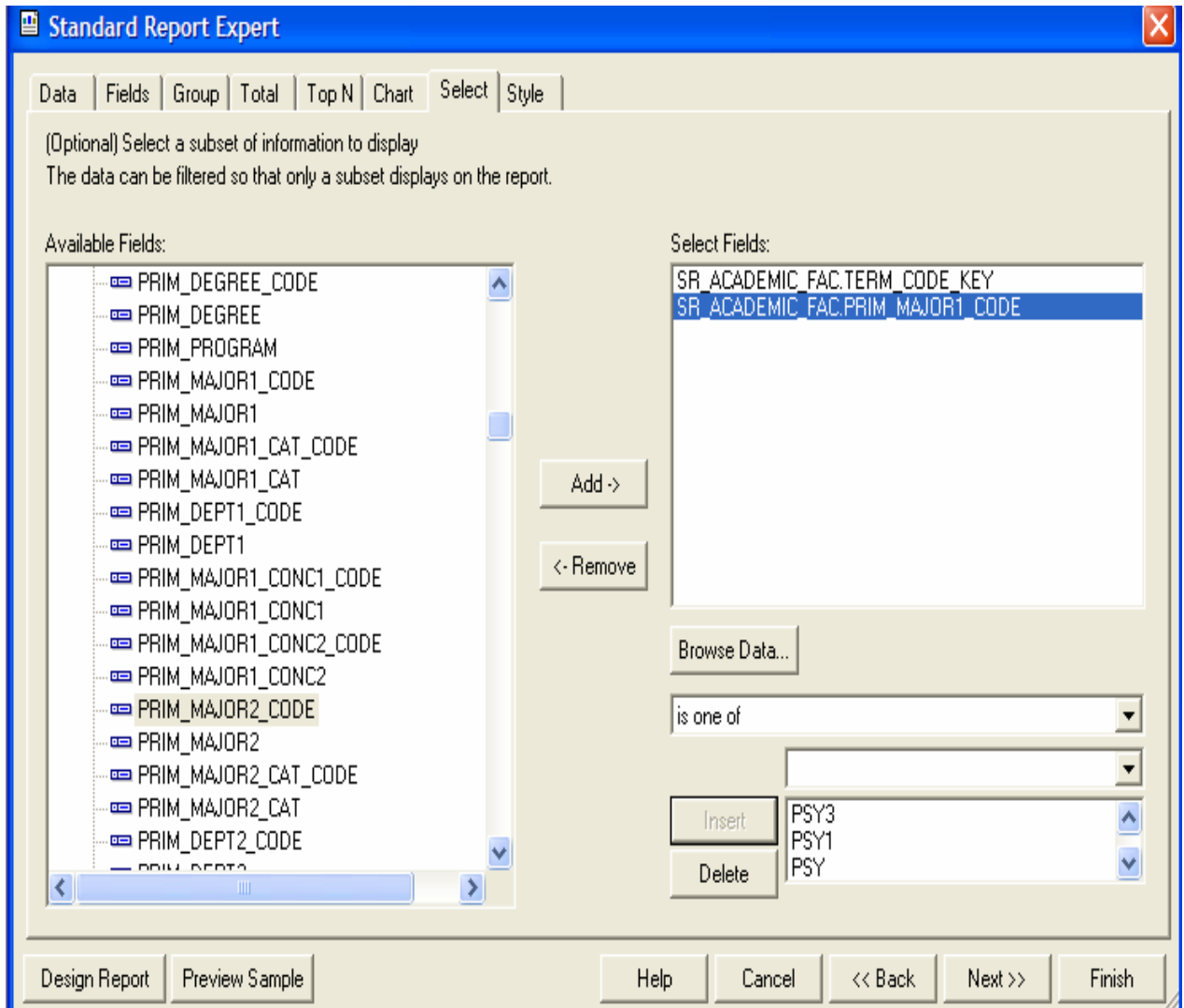
From the “**Select**” Tab, we select the criteria we need for our query

a) Term\_code\_key **is equal to** ‘200409’



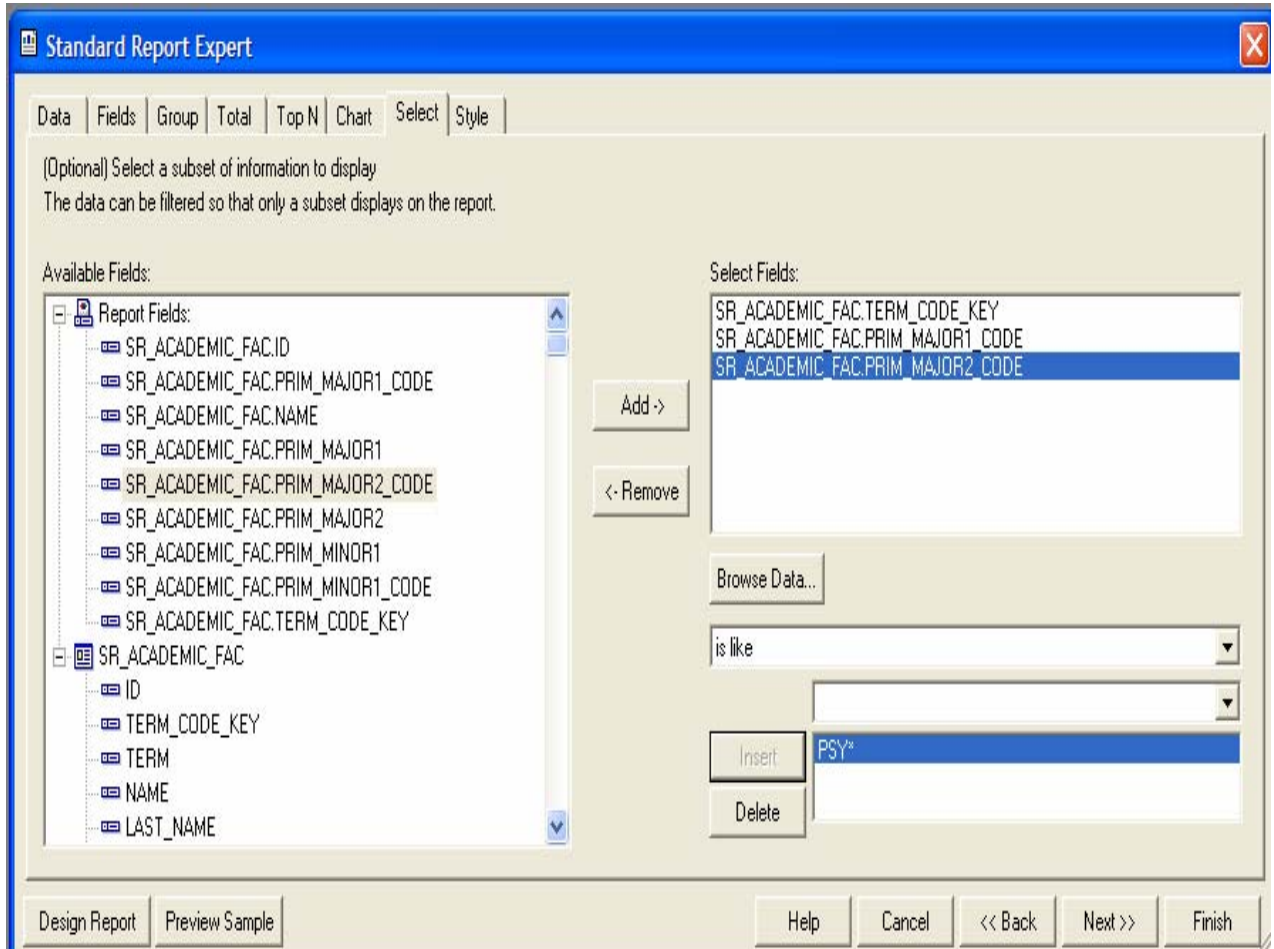
b) Prim\_major1\_code **is one of** PSY, PSY1, PSY3, PSY4, PSY5, PSY8

**Note: Codes are case-sensitive**



c) Prim\_Major2\_code **is like** PSY\*

**Note: Combining like with a wildcard (which in the case of Crystal is an asterix) replaces the need to list all the codes for Psychology**



d) Prim\_Minor1\_code is like PSY\*

The screenshot shows the 'Standard Report Expert' dialog box. It has a blue title bar and a menu bar with 'Data', 'Fields', 'Group', 'Total', 'Top N', 'Chart', 'Select', and 'Style'. Below the menu bar, there is a text area with the instruction: '(Optional) Select a subset of information to display. The data can be filtered so that only a subset displays on the report.'

The dialog is divided into two main sections:

- Available Fields:** A tree view on the left showing a hierarchy of fields. Under 'Report Fields', there are several fields including 'SR\_ACADEMIC\_FAC.ID', 'SR\_ACADEMIC\_FAC.PRIM\_MAJOR1\_CODE', 'SR\_ACADEMIC\_FAC.NAME', 'SR\_ACADEMIC\_FAC.PRIM\_MAJOR1', 'SR\_ACADEMIC\_FAC.PRIM\_MAJOR2\_CODE', 'SR\_ACADEMIC\_FAC.PRIM\_MAJOR2', 'SR\_ACADEMIC\_FAC.PRIM\_MINOR1', 'SR\_ACADEMIC\_FAC.PRIM\_MINOR1\_CODE', and 'SR\_ACADEMIC\_FAC.TERM\_CODE\_KEY'. Under 'SR\_ACADEMIC\_FAC', there are 'ID', 'TERM\_CODE\_KEY', 'TERM', 'NAME', and 'LAST\_NAME'.
- Select Fields:** A list on the right containing the same fields as the 'Available Fields' section. The field 'SR\_ACADEMIC\_FAC.PRIM\_MINOR1\_CODE' is currently selected and highlighted in blue.

Between the two sections are two buttons: 'Add ->' and '< - Remove'. Below the 'Select Fields' list is a 'Browse Data...' button. Below that is a dropdown menu with 'is like' selected. Below the dropdown is another dropdown menu with 'PSY\*' selected. Below these are 'Insert' and 'Delete' buttons.

At the bottom of the dialog, there are several buttons: 'Design Report', 'Preview Sample', 'Help', 'Cancel', '<< Back', 'Next >>', and 'Finish'.

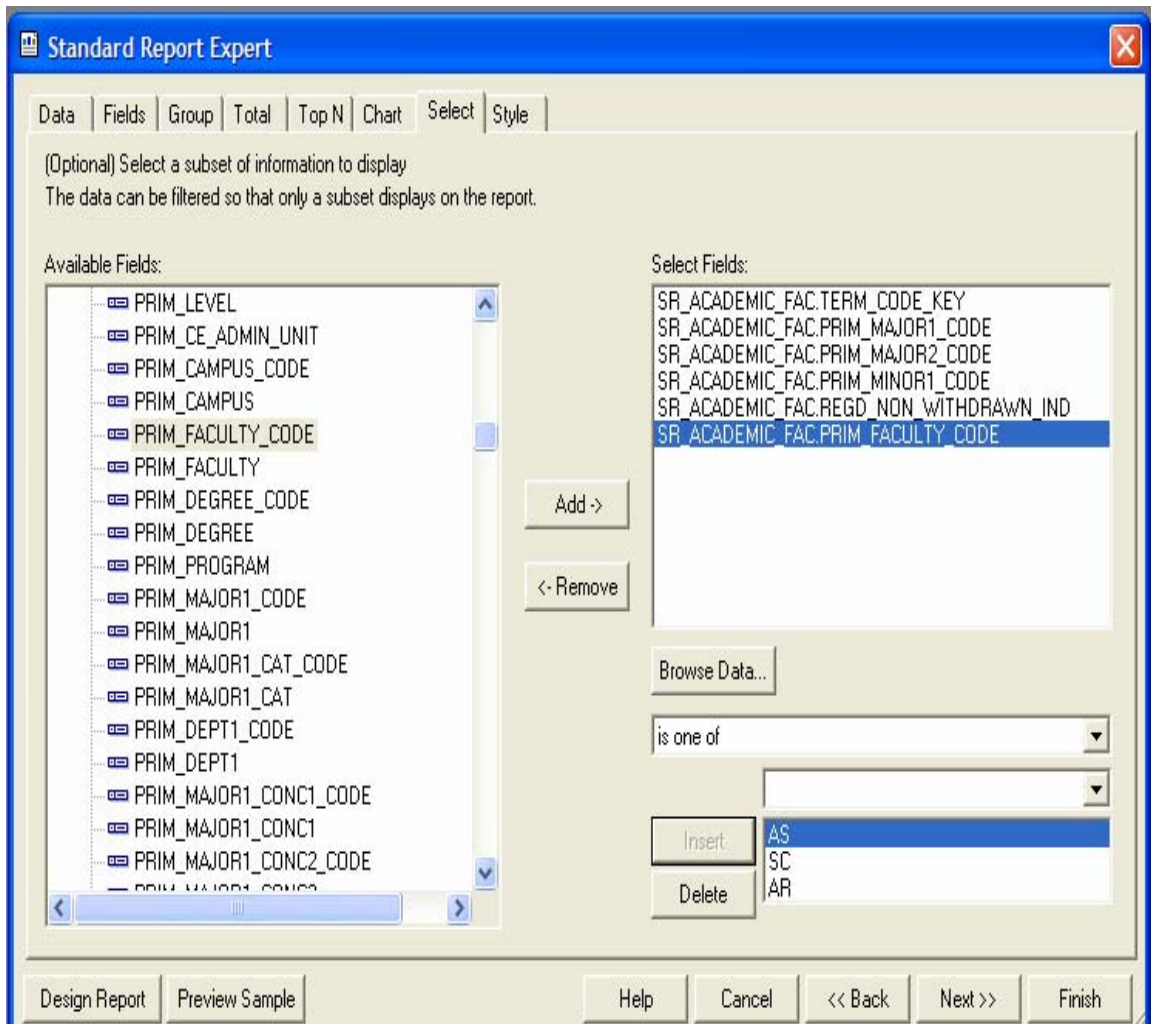
e) Query requires all registered students, therefore:  
REGD\_NON\_WITHDRAWN\_IND **is equal to Y**

The screenshot shows the 'Standard Report Expert' dialog box. It has a blue title bar and a menu bar with 'Data', 'Fields', 'Group', 'Total', 'Top N', 'Chart', 'Select', and 'Style'. Below the menu bar, there is a text area with the instruction: '(Optional) Select a subset of information to display. The data can be filtered so that only a subset displays on the report.'

The dialog is divided into two main sections: 'Available Fields' on the left and 'Select Fields' on the right. The 'Available Fields' list includes: LANGUAGE\_USED\_CODE, LANGUAGE\_USED, DECEASED\_IND, DECEASED\_DATE, ENROLLMENT\_STATUS\_CODE, ENROLLMENT\_STATUS, REGD\_NON\_WITHDRAWN\_IND, NO\_ACTIVITY\_TERM\_OF\_GRAD\_IND, AWARDED\_DEGREE\_IND, EXTERNAL\_STUDENT\_IND, REGISTRATION\_DATE, STUDENT\_STATUS\_CODE, STUDENT\_STATUS, STUDENT\_TYPE\_CODE, STUDENT\_TYPE, and PRIM\_CURRICULUM\_LOAD\_CODE. The 'Select Fields' list contains: SR\_ACADEMIC\_FAC.TERM\_CODE\_KEY, SR\_ACADEMIC\_FAC.PRIM\_MAJOR1\_CODE, SR\_ACADEMIC\_FAC.PRIM\_MAJOR2\_CODE, SR\_ACADEMIC\_FAC.PRIM\_MINOR1\_CODE, and SR\_ACADEMIC\_FAC.REGD\_NON\_WITHDRAWN\_IND. The last field in the 'Select Fields' list is highlighted in blue.

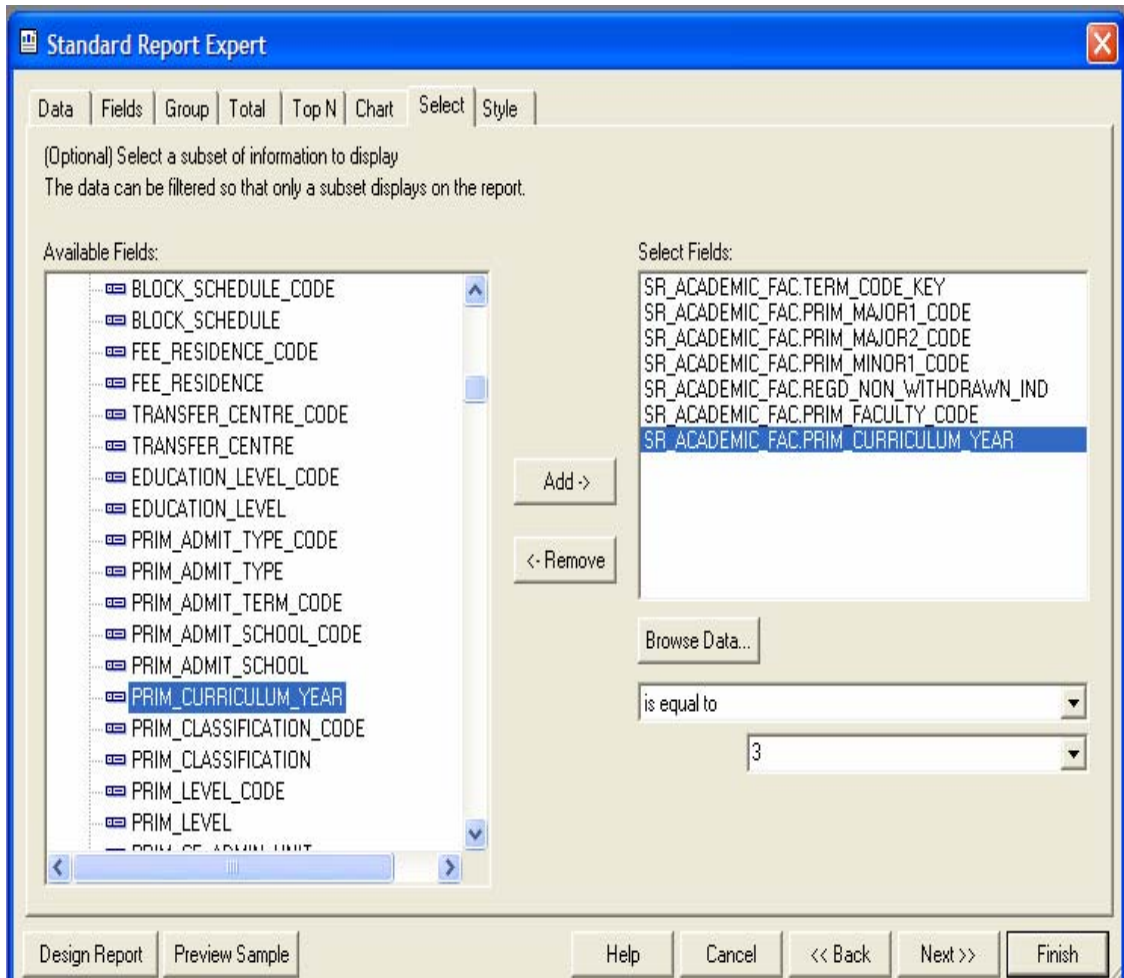
Between the two lists are 'Add ->' and '<- Remove' buttons. Below the 'Select Fields' list is a 'Browse Data...' button. Below that is a dropdown menu with the text 'is equal to' and a text input field containing the letter 'Y'. At the bottom of the dialog are buttons for 'Design Report', 'Preview Sample', 'Help', 'Cancel', '<< Back', 'Next >>', and 'Finish'.

f) Since we want students in the faculties of Arts, Science and Arts and Science, we should select PRIM\_FACULTY\_CODE **is one of** AR, AS, SC

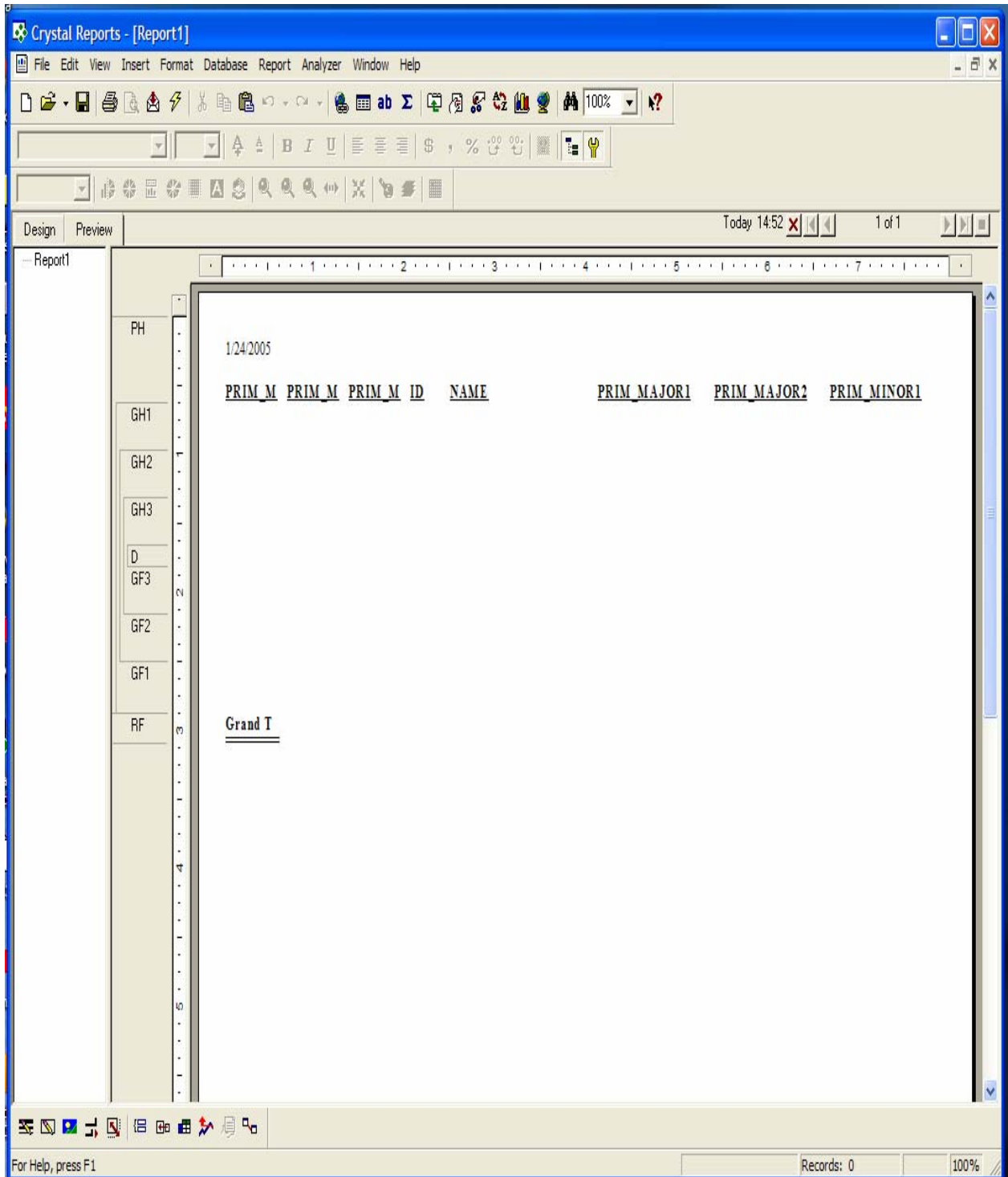




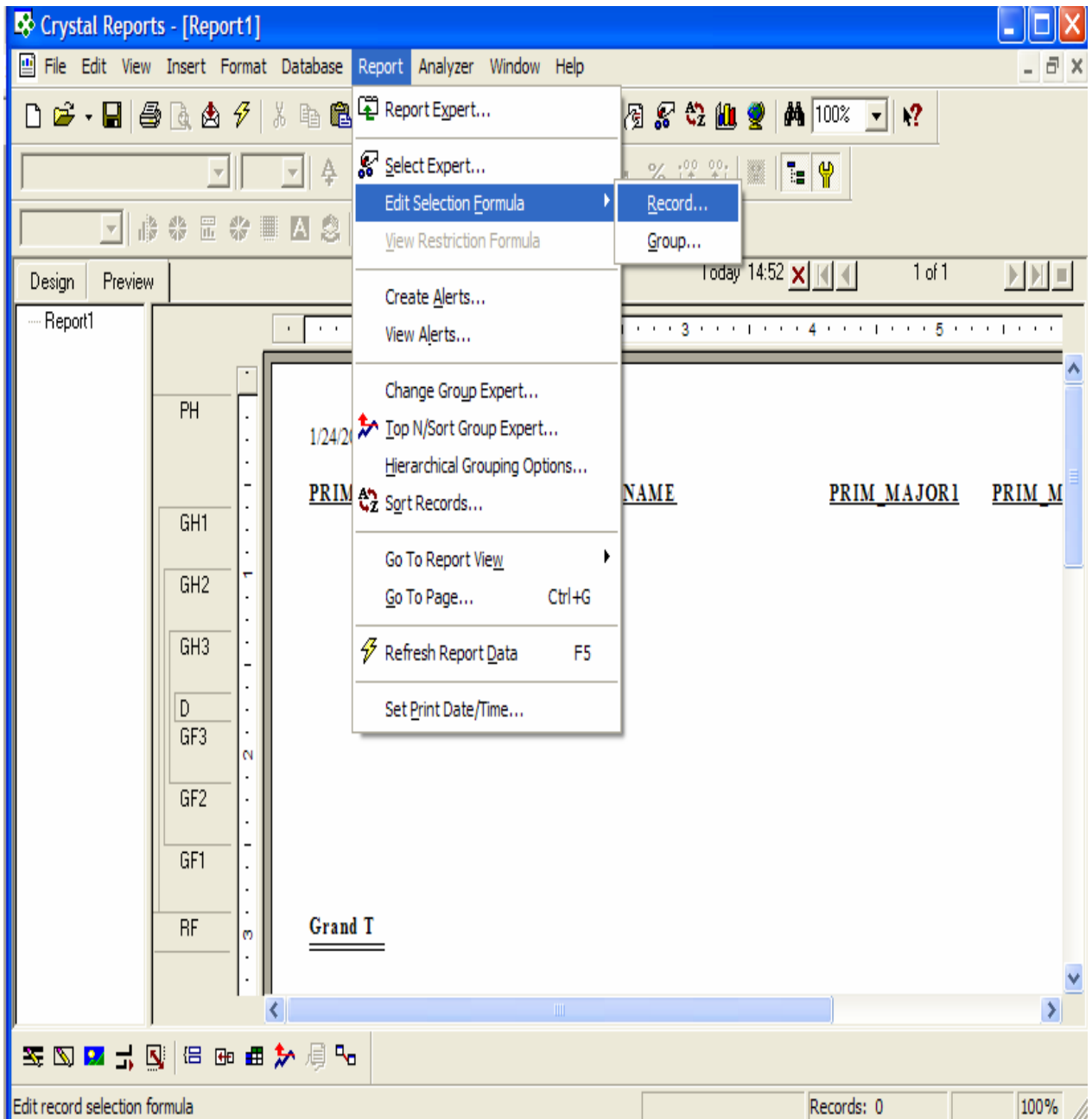
g) Since we want all U3 students, we can select Prim\_Curriculum\_Year **is equal to 3**



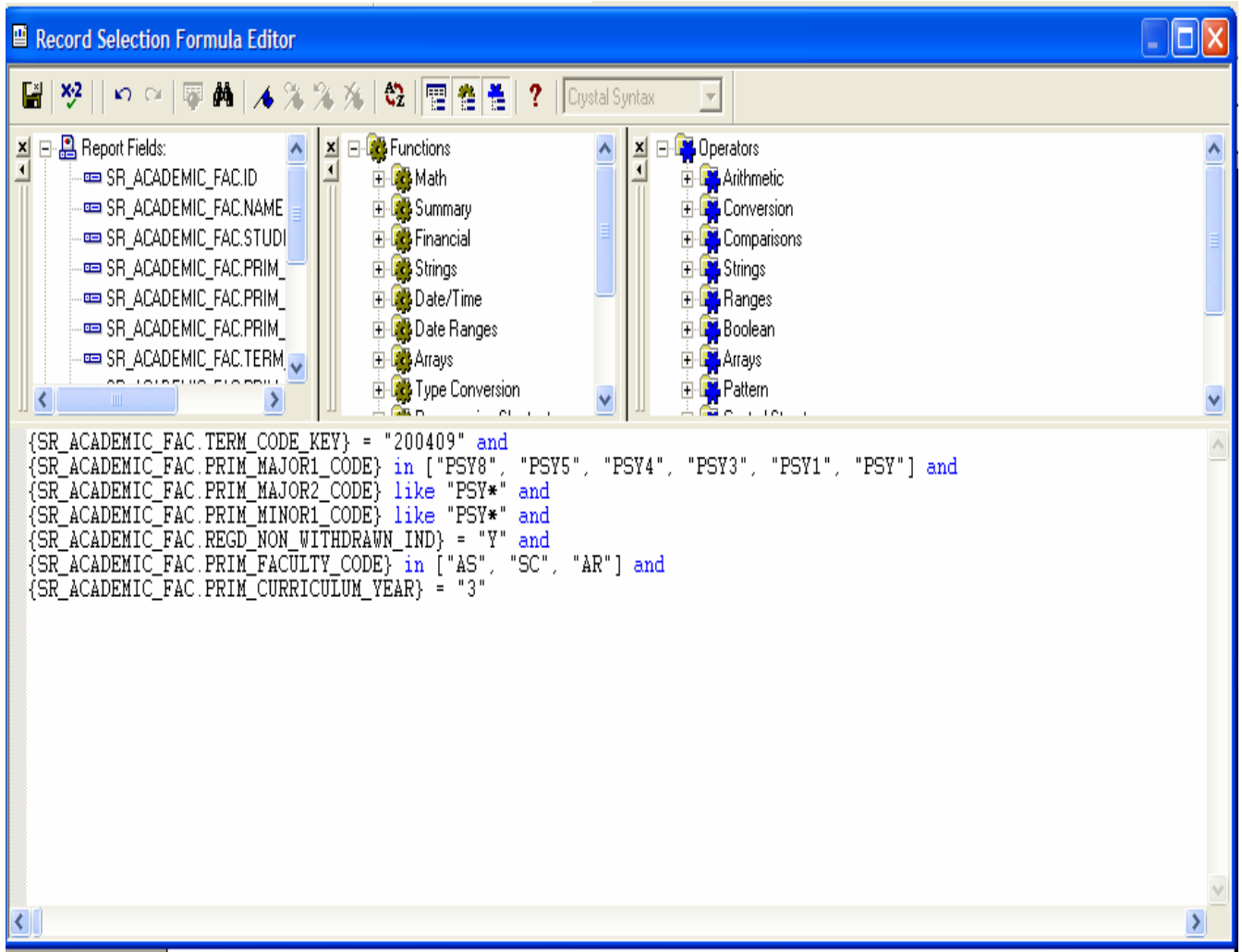
When we click on “Finish”, we realize that we obtain no results!



To find out the reason for this, Click on “Report”, then select “Edit Selection Formula”, then click on Record



Here you can see the SQL script that was generated. We see that it shows “Prim\_Major1\_code = .... **AND** Prim\_Major2\_code = ..... **AND**”). However, we want students who have Psychology either as Prim\_Major1 **OR** Prim\_Major2 etc.



Now, the “**AND**” between Prim\_Major1\_code, Prim\_Major2\_code and Prim\_Minor1\_code has been changed to **OR** in order to give the correct list of students that we need. Brackets have been inserted as follows:

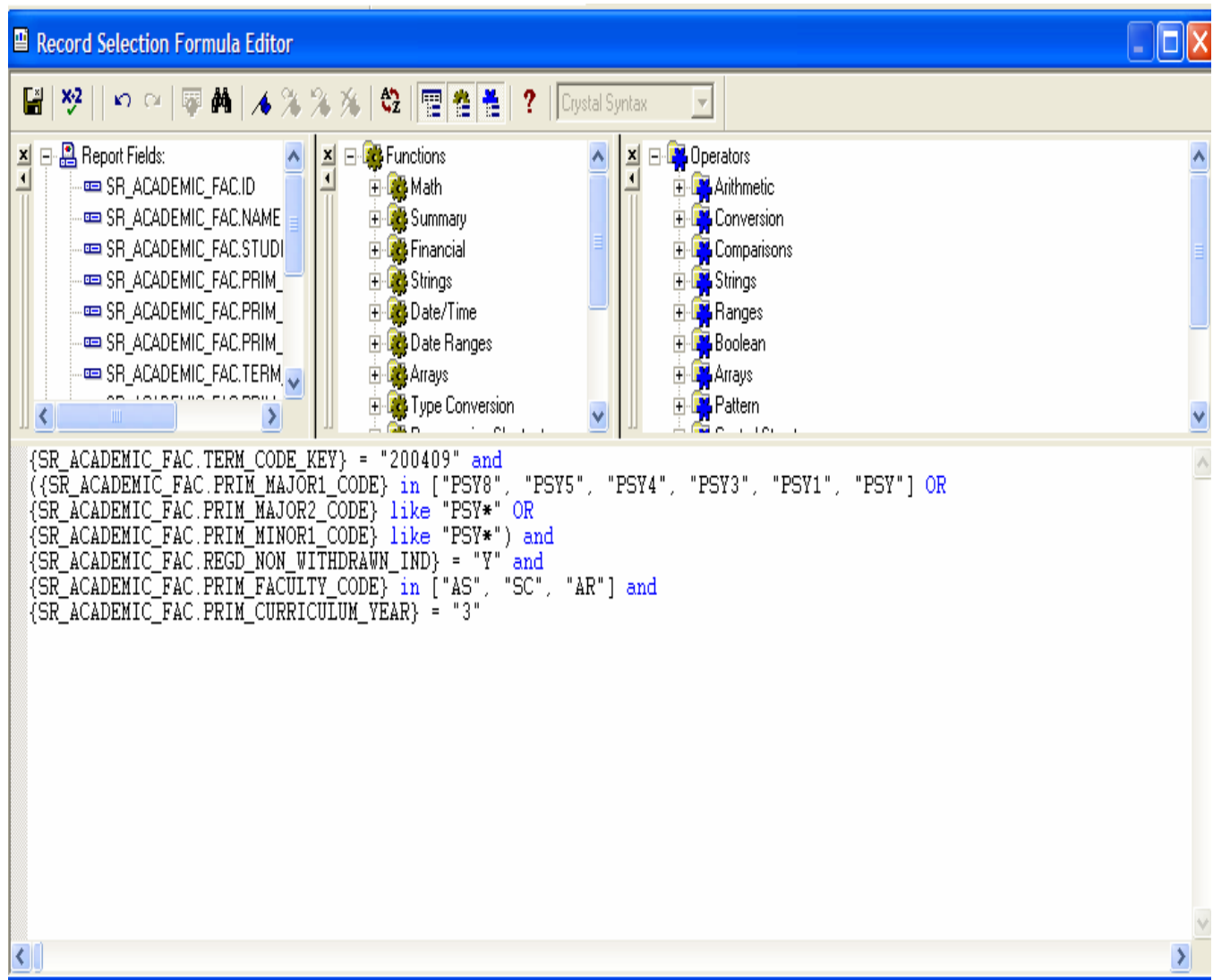
```
{(SR_ACADEMIC_FAC.PRIM_MAJOR1_CODE} in ["PSY8",  
"PSY5", "PSY4", "PSY3", "PSY1", "PSY"]
```

```
OR {SR_ACADEMIC_FAC.PRIM_MAJOR2_CODE} like PSY*
```

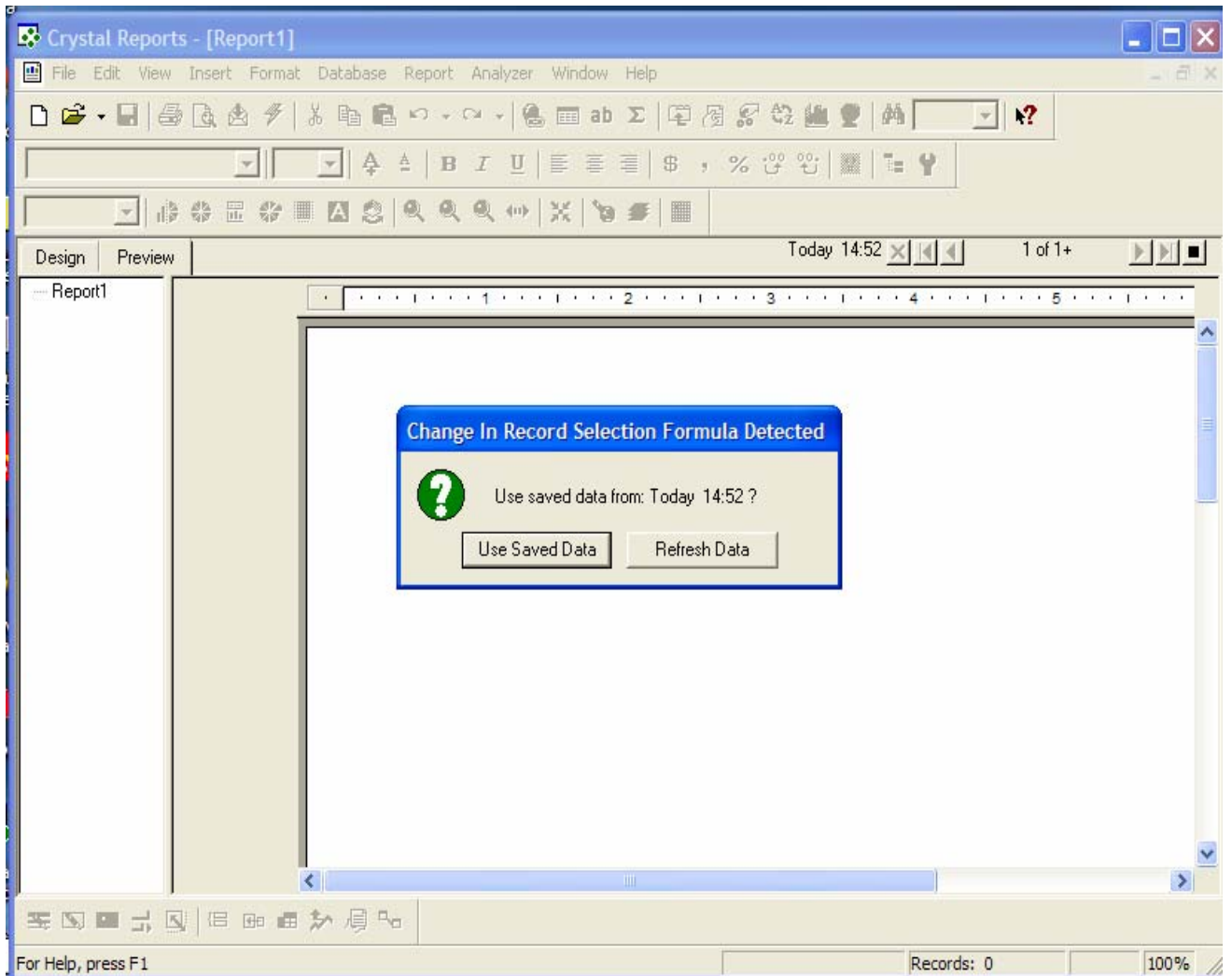
```
OR {SR_ACADEMIC_FAC.PRIM_MINOR1_CODE} like PSY*)
```

This allows the whole statement to be evaluated together.

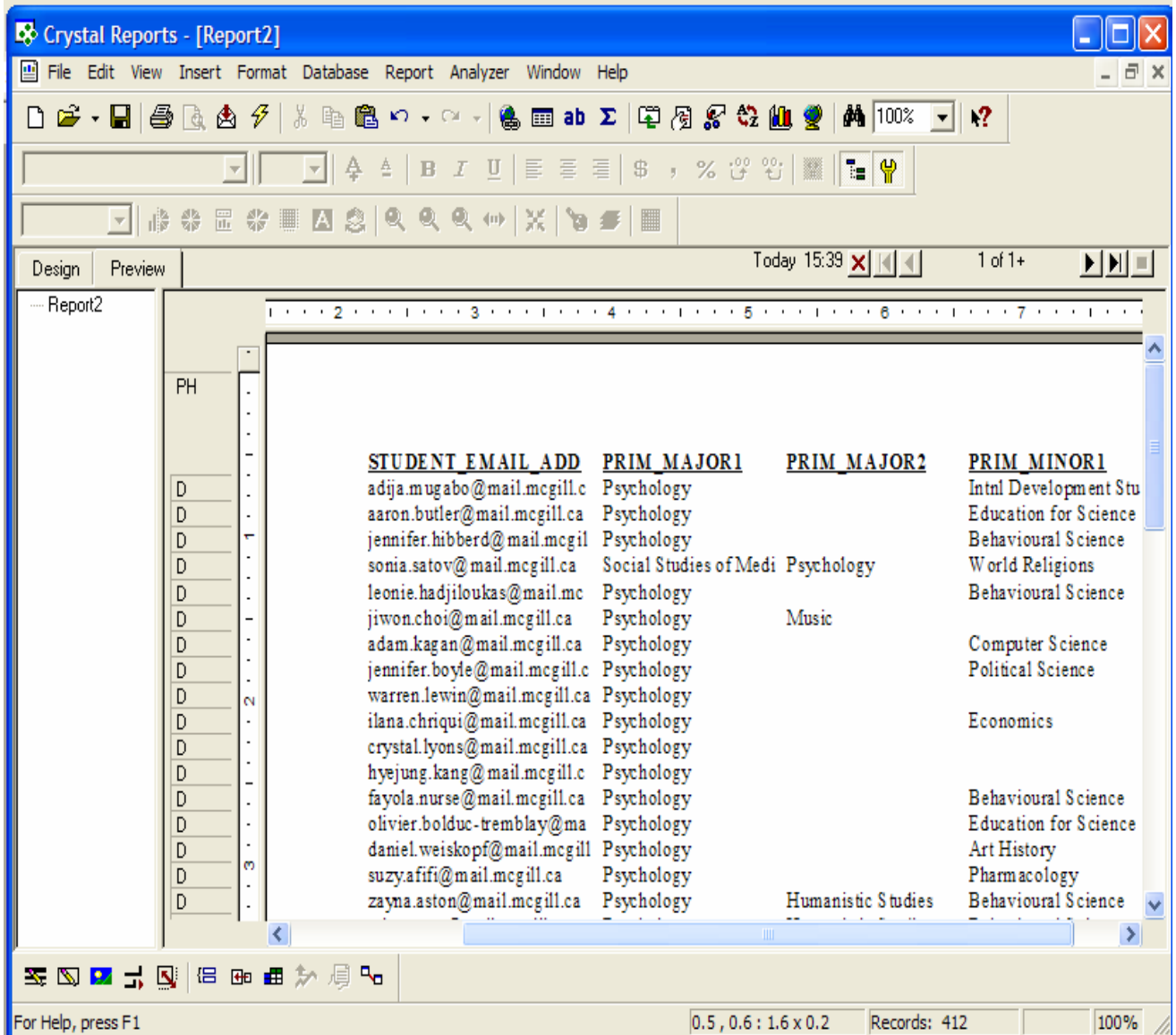
Click on Save on the left hand corner.



Click on “Refresh Data”



At the right hand corner, the number of records can be seen which is 412. However, this is an incorrect number because of the null value problem in Crystal



**Simple explanation of null-value problem:**

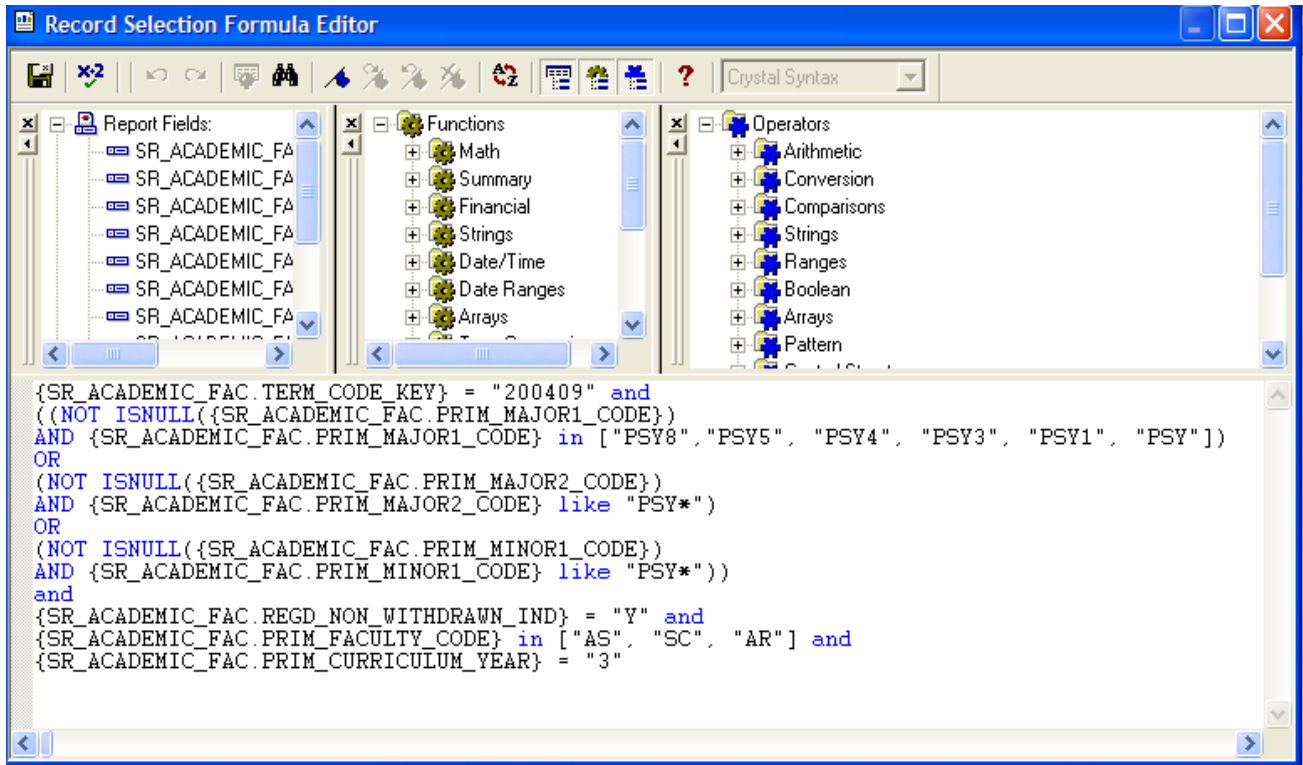
<b>Student's Name</b>	<b>Prim_major1</b>	<b>Prim_major2</b>	<b>Prim_minor1</b>
John	English	Psychology	Chemistry
Tom	History		Psychology
Jane	Psychology	Anthropology	
Ann	Economics		Psychology

Only **John** and **Jane** will appear on our list when we run the report in Crystal. This is because the moment Crystal finds a null value in one of the columns, it skips the remaining columns and moves to the next entity.

Therefore, it starts by looking at John, checks if John has Psychology as a Prim\_major1, if not then checks if John has Psychology as Prim\_major2. When Prim\_Major2 equals Psychology, it moves on to Tom. It checks Psychology for Prim\_Major1- finds nothing, then goes to check Psychology for Prim\_major2 and finds it blank. Instead of checking Prim\_minor1, it skips that step and moves to the next person who is Jane. Therefore even though Tom has Psychology as Prim\_minor1, it never reaches that column and does not include Tom in the list of students. The same scenario happens when it reaches Ann.



Fix the null value problem by adding in “**NOT ISNULL**”. Make sure that the brackets have been inserted correctly as shown below



{SR\_ACADEMIC\_FAC.REGD\_NON\_WITHDRAWN\_IND} = "Y" and

{ SR\_ACADEMIC\_FAC.PRIM\_CURRICULUM\_YEAR} = "3" and

{ SR\_ACADEMIC\_FAC.PRIM\_FACULTY\_CODE} in ["AS", "SC", "AR"]

and

((NOT ISNULL({SR\_ACADEMIC\_FAC.PRIM\_MAJOR1\_CODE})

AND {SR\_ACADEMIC\_FAC.PRIM\_MAJOR1\_CODE} in ["PSY8",

"PSY5", "PSY4", "PSY3", "PSY1", "PSY"]]) **OR**

(NOT ISNULL({SR\_ACADEMIC\_FAC.PRIM\_MAJOR2\_CODE})

AND {SR\_ACADEMIC\_FAC.PRIM\_MAJOR2\_CODE} like "PSY\*")

**OR**

(NOT ISNULL({SR\_ACADEMIC\_FAC.PRIM\_MINOR1\_CODE})

AND {SR\_ACADEMIC\_FAC.PRIM\_MINOR1\_CODE} like "PSY\*"))

Now we get the correct number of records as seen on the right hand corner of the screen

The screenshot shows the Crystal Reports application window titled "Crystal Reports - [Report2]". The interface includes a menu bar (File, Edit, View, Insert, Format, Database, Report, Analyzer, Window, Help), a toolbar with various icons, and a design/preview view. The report content is displayed in a table format with the following columns: STUDENT\_EMAIL\_ADD, PRIM\_MAJOR1, PRIM\_MAJOR2, and PRIM\_MINOR1. The data rows list student email addresses and their primary and secondary majors/minors. The status bar at the bottom right indicates "Records: 484".

<u>STUDENT_EMAIL_ADD</u>	<u>PRIM_MAJOR1</u>	<u>PRIM_MAJOR2</u>	<u>PRIM_MINOR1</u>
adja.mugabo@mail.mcgill.c	Psychology		Intl Development Stu
alexandra.motut@mail.mcgil	English		Psychology
aaron.butler@mail.mcgill.ca	Psychology		Education for Science
jennifer.hibberd@mail.mcgil	Psychology		Behavioural Science
sonia.satov@mail.mcgill.ca	Social Studies of Medi	Psychology	World Religions
leonie.hadjiloukas@mail.mc	Psychology		Behavioural Science
jiwon.choi@mail.mcgill.ca	Psychology	Music	
adam.kagan@mail.mcgill.ca	Psychology		Computer Science
jennifer.boyle@mail.mcgill.c	Psychology		Political Science
warren.lewin@mail.mcgill.ca	Psychology		
ilana.chriqui@mail.mcgill.ca	Psychology		Economics
crystal.lyons@mail.mcgill.ca	Psychology		
hyejung.kang@mail.mcgill.c	Psychology		
fayola.nurse@mail.mcgill.ca	Psychology		Behavioural Science
olivier.bolduc-tremblay@ma	Psychology		Education for Science
daniel.weiskopf@mail.mcgill	Psychology		Art History
suzy.afifi@mail.mcgill.ca	Psychology		Pharmacology