

COMP 421  
Group 11  
Project - Part 2

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Question 1:

Output from DB when triggers.sql is run:

```
CS421=> \i triggers.sql
CREATE TABLE
CREATE FUNCTION
CREATE TRIGGER
UPDATE 1
UPDATE 1
CS421=>
```

Result of UPDATE pet\_pages SET species = 'Donkhay' WHERE page\_id = 1; :

```
SELECT * FROM pet_pages;
```

```
page_id | species | gender | age | birthday
```

```
-----+-----+-----+-----+-----
 2 | Dog   | F     | 7 |
 3 | Fish  | M     | 1 |
 4 | Fish  | F     | 1 | 2013-11-02
 5 | Cat   | F     | 1 |
 6 | Cat   | N     | 6 |
 7 | Dog   | M     | 1 |
 8 | Cat   | F     | 1 |
 9 | Turtle | M     | 2 | 2013-03-09
10 | Cat   | F     | 1 | 2013-09-14
11 | Pig   | M     | 1 | 2014-01-30
12 | Gerbil | M     | 3 |
 1 | Donkhay | M     | 1 | 2014-02-15
```

```
SELECT * FROM pet_page_backup_table;
```

```
page_id | species | gender | age | birthday
```

```
-----+-----+-----+-----+-----
 1 | Donkhay | M     | 1 | 2014-02-15
```

Result of UPDATE pet\_pages SET species = 'Dog' WHERE page\_id = 2;

SELECT \* FROM pet\_page\_backup\_table;

page\_id | species | gender | age | birthday

-----+-----+-----+-----+-----

1 | Donkhay | M | 1 | 2014-02-15

SELECT \* FROM pet\_pages;

page\_id | species | gender | age | birthday

-----+-----+-----+-----+-----

2 | Dog | F | 7 |

3 | Fish | M | 1 |

4 | Fish | F | 1 | 2013-11-02

5 | Cat | F | 1 |

6 | Cat | N | 6 |

7 | Dog | M | 1 |

8 | Cat | F | 1 |

9 | Turtle | M | 2 | 2013-03-09

10 | Cat | F | 1 | 2013-09-14

11 | Pig | M | 1 | 2014-01-30

12 | Gerbil | M | 3 |

1 | Donkhay | M | 1 | 2014-02-15

### Question 2 & Question 3:

sample output for all cases (option 1 repeated at end to see change!):

```
[valerie][22:41:37]( ~/Documents/comp421/cs421group/Project_Part3/java-ui )$./runscript
```

~\*Welcome to the Neo Pet Space DataBase\*~

-----

1. Display all pets info

2. Add a new pet page

3. List all donkeys born after some date

4. List suggested interest for given pet

5. View index options

6. Re-Print options

7. Quit

-----

Enter a number , 1 -> 7, corresponding to the options listed: 1

Enter the data for the pet you're adding:

PetName (required):

Gurshane

Your user ID (required)(int):

2

Gender (char, m or f):

m

Species:

iguana

Description (not required):

Sits on logs. Has a tail. Makes friends.

File path for picture (not required):

Age (optional)(int):

14

Birthday (yyyy-mm-dd)(optional):

Enter a number , 1 -> 7, corresponding to the options listed: 3

Insert date of the form yyyy-mm-dd; will find all donkeys born after that date.

2000-01-01

all relevant donkeys:

-----						
NAME	OWNER-ID	SPECIES	GENDER	AGE	BIRTHDAY	DESCRIPTION
-----						
Max	1	Donkhay	M	1	2014-02-15	The best dog ever
-----						

Enter a number , 1 -> 7, corresponding to the options listed: 4

Enter a pet id: 2

suggested interest page names

-----

Associated Soccerballers of Swaziland

Watching People

-----

Enter a number , 1 -> 7, corresponding to the options listed: 5

To test the index on popular poll responses, press 1.  
To test the index on posts created by a given page, press 2  
To return to the main menu, press 3  
1

Popular response:

```
-----  
Is Max a good boy?    Yes          15  
Is Max a good boy?    No           22  
Who is your favourite character on House of Cards?    Frank Underwood    41  
Who is your favourite character on House of Cards?    Claire Underwood   15  
Who is your favourite character on House of Cards?    Edward Meechum     55  
-----
```

Time taken without index: 6  
Time taken with index: 21  
Enter a number , 1 -> 7, corresponding to the options listed: 5

To test the index on popular poll responses, press 1.  
To test the index on posts created by a given page, press 2  
To return to the main menu, press 3  
2  
Enter a page id number to retrieve their posts.  
2

Posts made by given page id:

```
-----  
3      2      Sam   The worst dog ever      1  
-----
```

Time taken without index: 38  
Time taken with index: 4  
Enter a number , 1 -> 7, corresponding to the options listed: 6

```
-----  
1. Display all pets info  
2. Add a new pet page  
3. List all donkeys born after some date  
4. List suggested interest for given pet  
5. View index options  
6. Re-Print options
```

7. Quit

-----  
Enter a number , 1 -> 7, corresponding to the options listed: 1

page_id	species	gender	age	birthday
1	Donkhay	M	1	2014-02-15
2	Dog F	7	null	
3	Fish M	1	null	
4	Fish F	1	2013-11-02	
5	Cat F	1	null	
6	Cat N	6	null	
7	Dog M	1	null	
8	Cat F	1	null	
9	Turtle	M	2	2013-03-09
10	Cat F	1	2013-09-14	
11	Pig M	1	2014-01-30	
12	Gerbil	M	3	null
27	Iguana	M	14	null

-----

Enter a number , 1 -> 7, corresponding to the options listed: 7

#### **Question 4 Indexes:**

*Index 1:*

--Index responses by num\_votes to speed up retrieval of popular responses.

--This is for quickly accessing popular responses to polls.

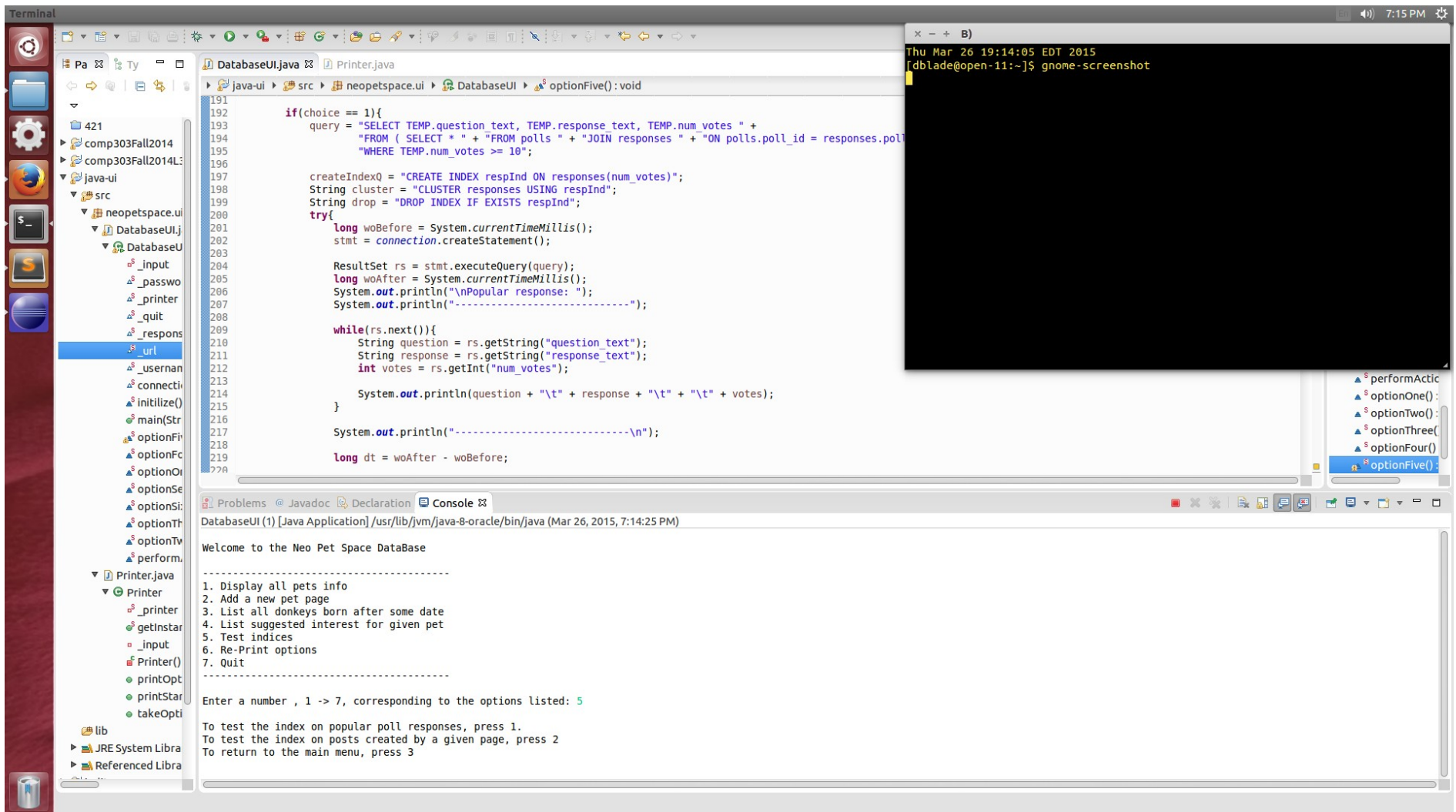
*Index 2:*

--Index on creator attribute to speed up retrieval of posts made by given page.

--This is for quickly gathering posts made by a specific page.

#### **Question 4 Timing:**

First picture indicates the time on the machine before running: (in console area and in terminal)



Images 2 and 3 are the results from each index:

Terminal

DatabaseUI.java Printer.java

java-ui > src > neopetspace.ui > DatabaseUI > optionFive():void

```
191
192     if(choice == 1){
193         query = "SELECT TEMP.question_text, TEMP.response_text, TEMP.num_votes " +
194               "FROM ( SELECT * " + "FROM polls " + "JOIN responses " + "ON polls.poll_id = responses.poll_id ) AS TEMP " +
195               "WHERE TEMP.num_votes >= 10";
196
197         createIndexQ = "CREATE INDEX respInd ON responses(num_votes)";
198         String cluster = "CLUSTER responses USING respInd";
199         String drop = "DROP INDEX IF EXISTS respInd";
200         try{
201             long woBefore = System.currentTimeMillis();
202             stmt = connection.createStatement();
203
204             ResultSet rs = stmt.executeQuery(query);
205             long woAfter = System.currentTimeMillis();
206             System.out.println("\nPopular response: ");
207             System.out.println("-----");
208
209             while(rs.next()){
210                 String question = rs.getString("question_text");
211                 String response = rs.getString("response_text");
212                 int votes = rs.getInt("num_votes");
213
214                 System.out.println(question + "\t" + response + "\t" + "\t" + votes);
215             }
216
217             System.out.println("-----\n");
218
219             long dt = woAfter - woBefore;
220
221         }
222     }
```

Thu Mar 26 19:14:05 EDT 2015  
[dblade@open-11:~]\$ gnome-screenshot  
[dblade@open-11:~]\$ gnome-screenshot

optionTwo():  
optionThree():  
optionFour():  
optionFive():

DatabaseUI (1) [Java Application] /usr/lib/jvm/java-8-oracle/bin/java (Mar 26, 2015, 7:14:25 PM)  
Enter a number , 1 -> 7, corresponding to the options listed: 5

To test the index on popular poll responses, press 1.  
To test the index on posts created by a given page, press 2  
To return to the main menu, press 3

1

Popular response:

Is Max a good boy?	Yes	15	
Who is your favourite character on House of Cards?	Claire Underwood	15	
Is Max a good boy?	No	22	
Who is your favourite character on House of Cards?	Frank Underwood	41	
Who is your favourite character on House of Cards?	Edward Meechum	55	

Time taken without index: 35  
Time taken with index: 10  
Enter a number , 1 -> 7, corresponding to the options listed:

Terminal

DatabaseUI.java Printer.java

java-ui src neopetspace.ui DatabaseUI optionFive():void

```
236 }
237 else if (choice == 2){
238     int pid = -1;
239
240     createIndexQ = "CREATE INDEX creatorInd ON posts(creator)";
241     String drop = "DROP INDEX IF EXISTS creatorInd";
242     System.out.println("Enter a page id number to retrieve their posts.");
243
244     try {
245         pid = Integer.parseInt(_input.readLine());
246     } catch (IOException e) {
247         throw new Exception("Input could not be read");
248     }
249     query = "SELECT posts.post_id, posts.creator, pages.pname, pages.description, pages.manager_user_id " +
250            "FROM posts, pages WHERE posts.creator = pages.page_id AND posts.creator = " + pid;
251
252     try{
253         long woBefore = System.currentTimeMillis();
254         stmt = connection.createStatement();
255
256         ResultSet rs = stmt.executeQuery(query);
257         long woAfter = System.currentTimeMillis();
258         System.out.println("\nPosts made by given page id: ");
259         System.out.println("-----");
260
261         while(rs.next()){
262             int postid = rs.getInt("post_id");
263             int creator = rs.getInt("creator");
264             String pname = rs.getString("pname");
265             String desc = rs.getString("description");
266         }
267     }
```

Thu Mar 26 19:14:05 EDT 2015  
[dblade@open-11:~]\$ gnome-screenshot  
[dblade@open-11:~]\$ gnome-screenshot  
[dblade@open-11:~]\$ gnome-screenshot

optionTwo()  
optionThree()  
optionFour()  
optionFive()

DatabaseUI (1) [Java Application] /usr/lib/jvm/java-8-oracle/bin/java (Mar 26, 2015, 7:18:21 PM)

Enter a number , 1 -> 7, corresponding to the options listed: 5

To test the index on popular poll responses, press 1.  
To test the index on posts created by a given page, press 2  
To return to the main menu, press 3

2

Enter a page id number to retrieve their posts.  
1

Posts made by given page id:  
-----

1	1	Max	The best dog ever	1
2	1	Max	The best dog ever	1

-----

Time taken without index: 29  
Time taken with index: 2  
Enter a number , 1 -> 7, corresponding to the options listed: