

**Lab3 due on Tuesday, Oct 16th by 1pm**  
**Just hand-in the PRINTOUT of your answers. No e-mails.**

1) Write a PL/SQL block that will use PL/SQL (INDEX BY) table to store Descriptions (Full Names) of all Courses that do NOT need a Prerequisite in alphabetical order. Display also the total number of these courses. Use just one Collection and one Integer variable. Use also an explicit cursor to solve this problem. Show all 4 phases when dealing with the cursor  
Here is the output:

**Course Description : 1: DP Overview**  
**Course Description : 2: Intro to Computers**  
**Course Description : 3: Java for C/C++ Programmers**  
**Course Description : 4: Operating Systems**  
\*\*\*\*\*  
**Total # of Courses without the Prerequisite is: 4**  
**PL/SQL procedure successfully completed.**

2) Rewrite problem 1) by using an automated Cursor For Loop and NESTED Table instead of INDEX BY Table

3) Write a PL/SQL block that will ask for an input of first 3 digits for a Zip Code and then will display number of students for each zip code. It will also calculate the total number of zip codes and total number of students for this 3 digit zip area. In the case that zip area is empty (NO students from there), it should display an appropriate message. You should use RECORD type with 2 components and Cursor with manual handling (all 4 phases). Here are the possible outputs:

073

**Zip code : 07302 has exactly 1 students enrolled.**  
**Zip code : 07304 has exactly 2 students enrolled.**  
**Zip code : 07306 has exactly 4 students enrolled.**  
**Zip code : 07307 has exactly 3 students enrolled.**  
\*\*\*\*\*  
**Total # of zip codes under 073 is 4**  
**Total # of Students under zip code 073 is 10**  
**PL/SQL procedure successfully completed.**

013

**This zip area is student empty. Please, try again.**  
**PL/SQL procedure successfully completed.**

4) Rewrite problem 3) by using an automated Cursor For Loop and INDEX BY

Table instead of RECORD type.