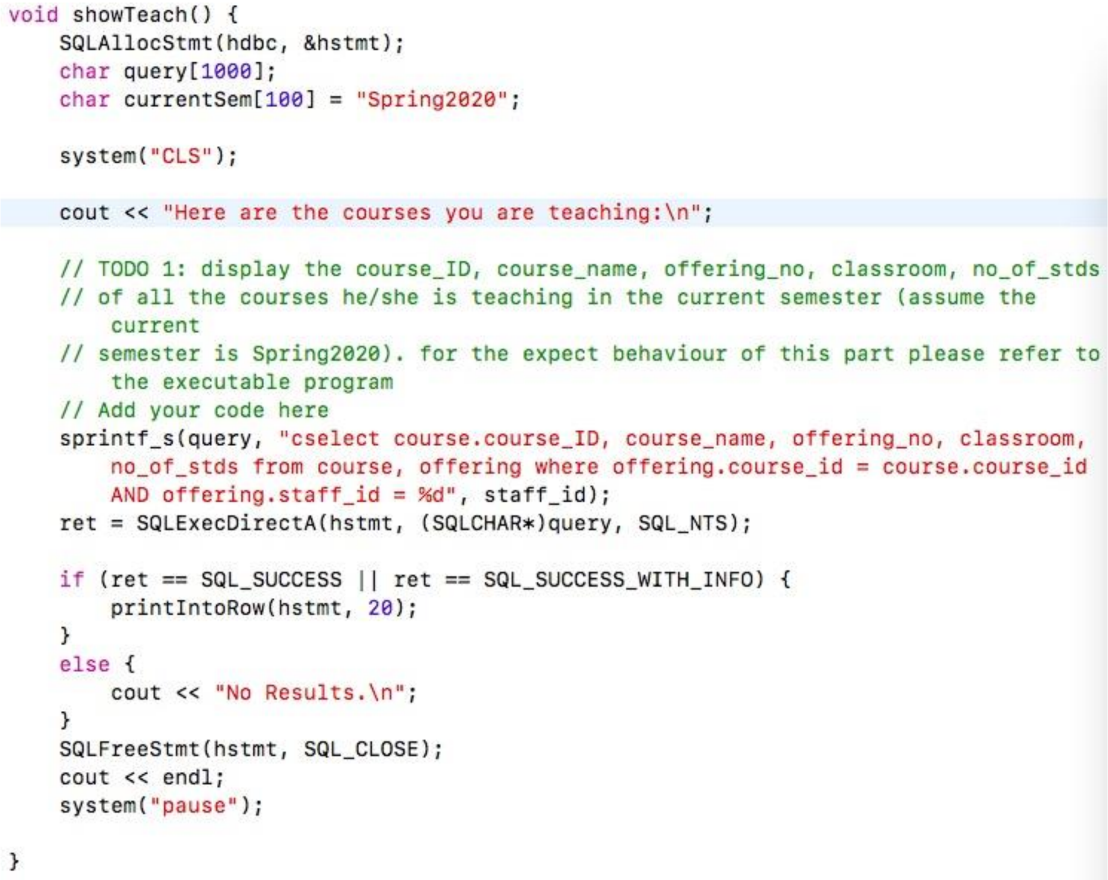
Assignment 4 grading scheme

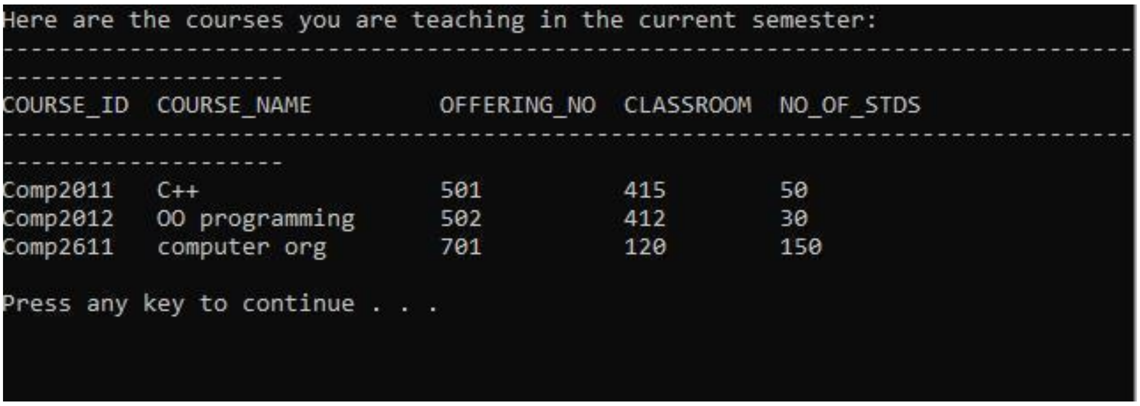
1. If there are any compiling errors due to your submitted work when we run our testing, you will receive 0 mark for this assignment.
2. No partial marks will be given for each TODO and no negotiation on partial marks will be handled.
3. As the demo program is provided, you need to make sure that your program gives exactly the same output as that of the demo program before the submission. If your program gives different outputs as the demo program, all marks for the TODO will be deducted.

12.5×8=100

TODO1:



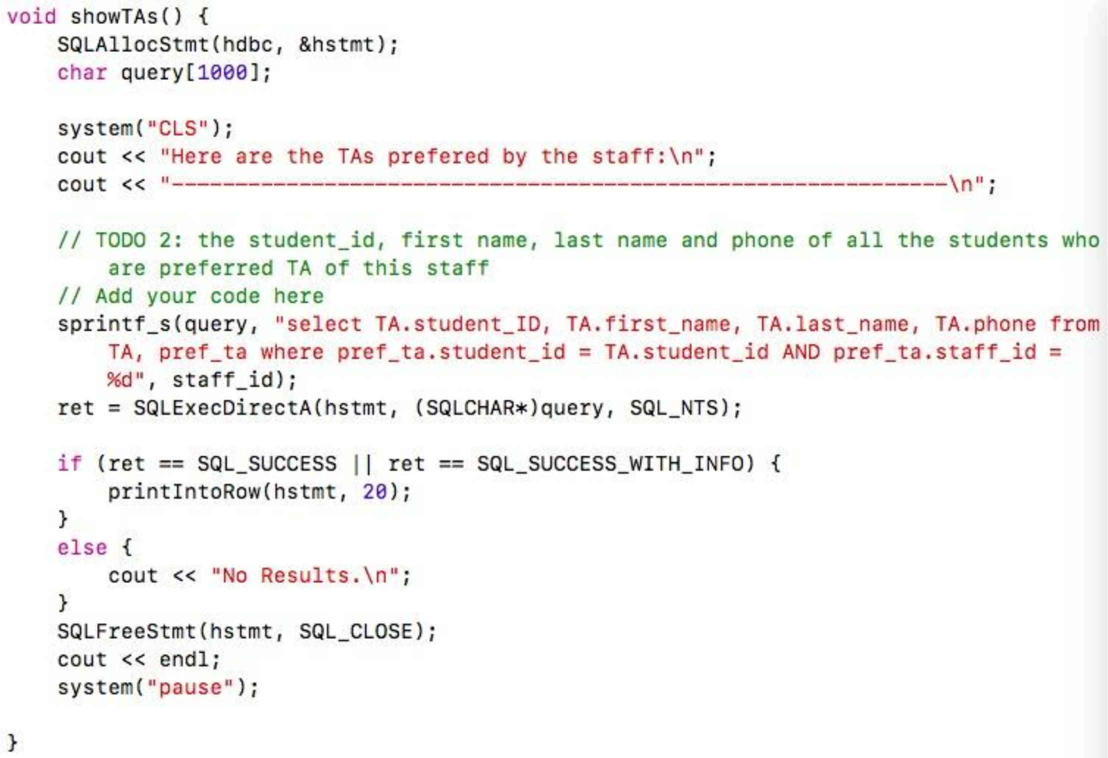
```
void showTeach() {
    SQLAllocStmt(hdbc, &hstmt);
    char query[1000];
    char currentSem[100] = "Spring2020";

    system("CLS");

    cout << "Here are the courses you are teaching:\n";

    // TODO 1: display the course_ID, course_name, offering_no, classroom, no_of_stds
    // of all the courses he/she is teaching in the current semester (assume the
        current
    // semester is Spring2020). for the expect behaviour of this part please refer to
        the executable program
    // Add your code here
    sprintf_s(query, "cselect course.course_ID, course_name, offering_no, classroom,
        no_of_stds from course, offering where offering.course_id = course.course_id
        AND offering.staff_id = %d", staff_id);
    ret = SQLExecDirectA(hstmt, (SQLCHAR*)query, SQL_NTS);

    if (ret == SQL_SUCCESS || ret == SQL_SUCCESS_WITH_INFO) {
        printIntoRow(hstmt, 20);
    }
    else {
        cout << "No Results.\n";
    }
    SQLFreeStmt(hstmt, SQL_CLOSE);
    cout << endl;
    system("pause");

}
```



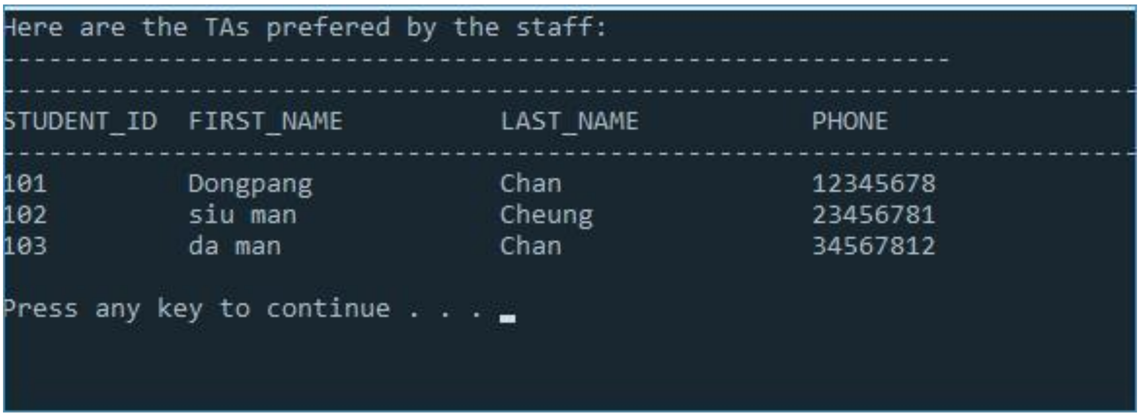
```
Here are the courses you are teaching in the current semester:
--------------------------------------------------------------------------------
--------------------
COURSE_ID  COURSE_NAME         OFFERING_NO  CLASSROOM  NO_OF_STDS
--------------------------------------------------------------------------------
--------------------
Comp2011   C++                 501          415        50
Comp2012   OO programming      502          412        30
Comp2611   computer org        701          120        150

Press any key to continue . . .
```

(Our answer displays the course_ID, course_name, offering_no, classroom, no_of_stds of all the courses he/she is teaching. The answer displaying the course_ID, course_name, offering_no, classroom, no_of_stds of all the courses he/she is teaching in the current semester (assume the current semester is Spring2020) is also right.)

TODO2:

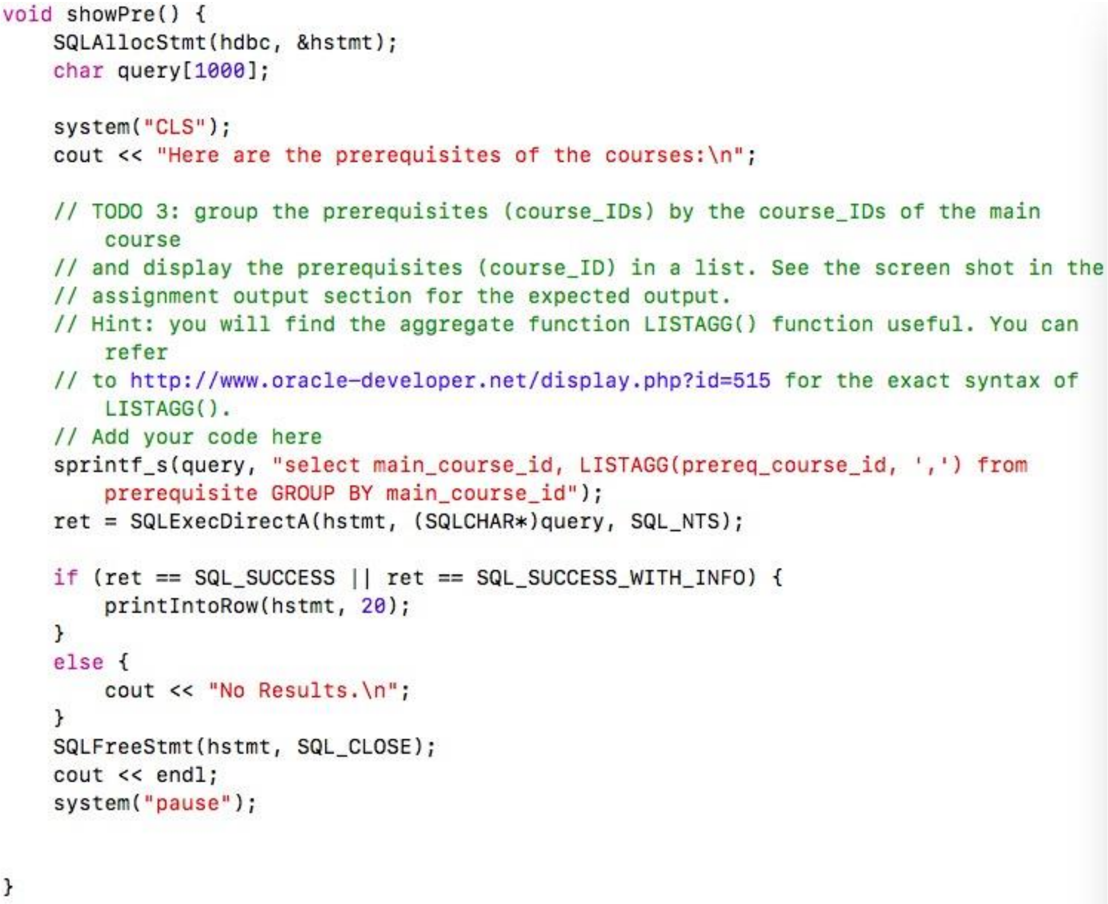


```
void showTAs() {
    SQLAllocStmt(hdbc, &hstmt);
    char query[1000];

    system("CLS");
    cout << "Here are the TAs prefered by the staff:\n";
    cout << "-------------------------------------------------------------\n";

    // TODO 2: the student_id, first name, last name and phone of all the students who
        are preferred TA of this staff
    // Add your code here
    sprintf_s(query, "select TA.student_ID, TA.first_name, TA.last_name, TA.phone from
        TA, pref_ta where pref_ta.student_id = TA.student_id AND pref_ta.staff_id =
        %d", staff_id);
    ret = SQLExecDirectA(hstmt, (SQLCHAR*)query, SQL_NTS);

    if (ret == SQL_SUCCESS || ret == SQL_SUCCESS_WITH_INFO) {
        printIntoRow(hstmt, 20);
    }
    else {
        cout << "No Results.\n";
    }
    SQLFreeStmt(hstmt, SQL_CLOSE);
    cout << endl;
    system("pause");

}
```

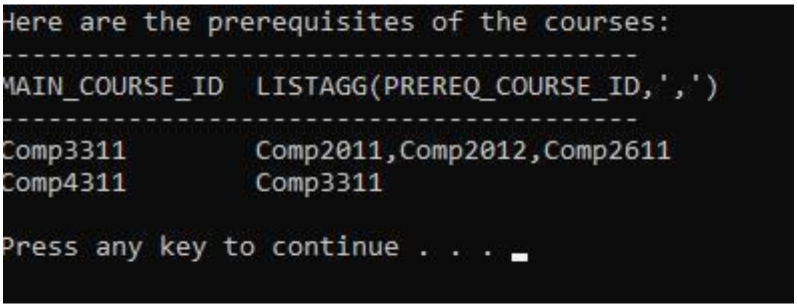


```
Here are the TAs prefered by the staff:
-------------------------------------------------------------
------------------------------------------------------------------------
STUDENT_ID  FIRST_NAME          LAST_NAME           PHONE
------------------------------------------------------------------------
101         Dongpang            Chan                12345678
102         siu man             Cheung              23456781
103         da man              Chan                34567812

Press any key to continue . . .
```

TODO3:

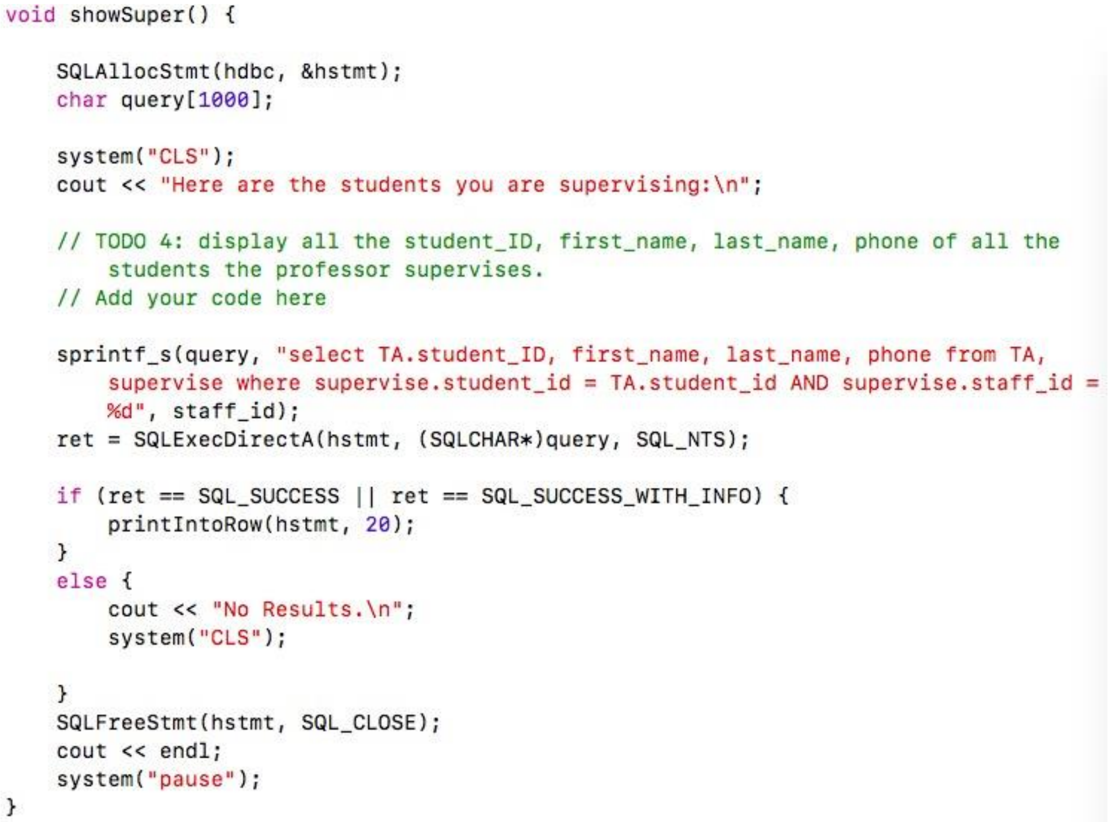


```
void showPre() {
    SQLAllocStmt(hdbc, &hstmt);
    char query[1000];

    system("CLS");
    cout << "Here are the prerequisites of the courses:\n";

    // TODO 3: group the prerequisites (course_IDs) by the course_IDs of the main
        course
    // and display the prerequisites (course_ID) in a list. See the screen shot in the
    // assignment output section for the expected output.
    // Hint: you will find the aggregate function LISTAGG() function useful. You can
        refer
    // to http://www.oracle-developer.net/display.php?id=515 for the exact syntax of
        LISTAGG().
    // Add your code here
    sprintf_s(query, "select main_course_id, LISTAGG(prereq_course_id, ',') from
        prerequisite GROUP BY main_course_id");
    ret = SQLExecDirectA(hstmt, (SQLCHAR*)query, SQL_NTS);

    if (ret == SQL_SUCCESS || ret == SQL_SUCCESS_WITH_INFO) {
        printIntoRow(hstmt, 20);
    }
    else {
        cout << "No Results.\n";
    }
    SQLFreeStmt(hstmt, SQL_CLOSE);
    cout << endl;
    system("pause");


}
```

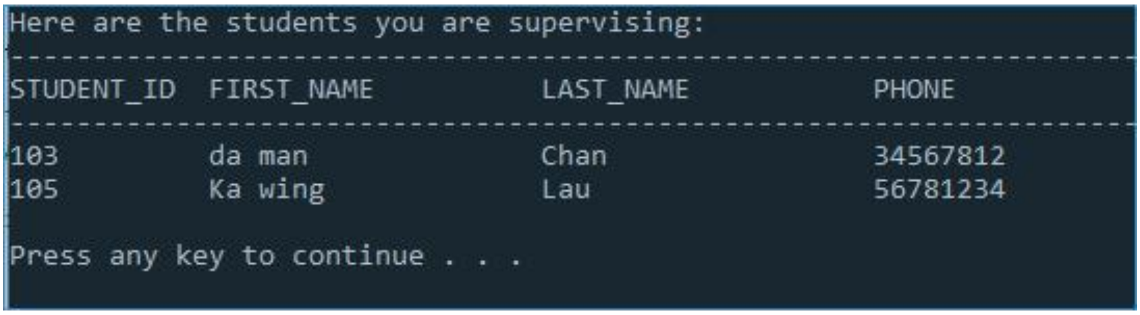


```
Here are the prerequisites of the courses:
----------------------------------------
MAIN_COURSE_ID  LISTAGG(PREREQ_COURSE_ID,',')
----------------------------------------
Comp3311        Comp2011,Comp2012,Comp2611
Comp4311        Comp3311

Press any key to continue . . .
```

TODO4:

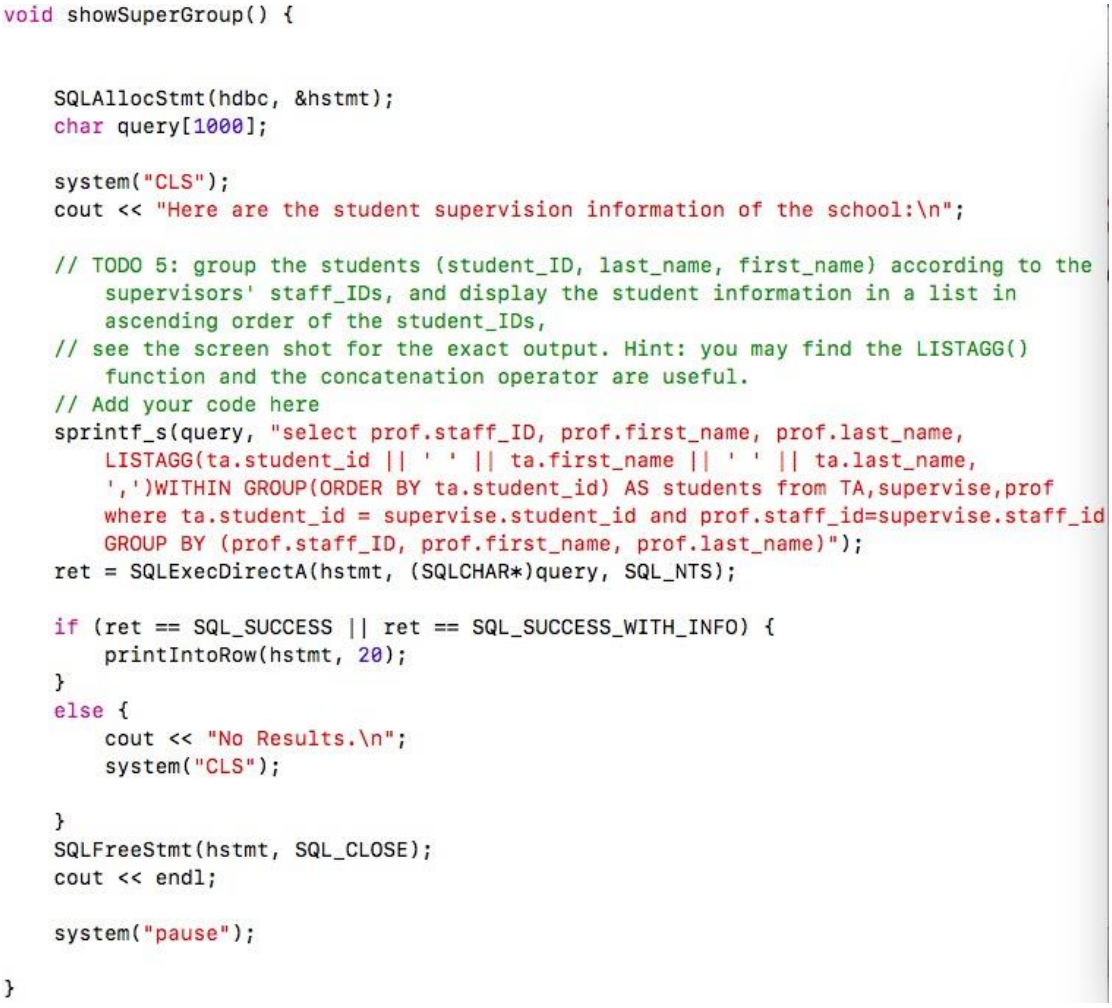


```
void showSuper() {

    SQLAllocStmt(hdbc, &hstmt);
    char query[1000];

    system("CLS");
    cout << "Here are the students you are supervising:\n";

    // TODO 4: display all the student_ID, first_name, last_name, phone of all the
        students the professor supervises.
    // Add your code here

    sprintf_s(query, "select TA.student_ID, first_name, last_name, phone from TA,
        supervise where supervise.student_id = TA.student_id AND supervise.staff_id =
        %d", staff_id);
    ret = SQLExecDirectA(hstmt, (SQLCHAR*)query, SQL_NTS);

    if (ret == SQL_SUCCESS || ret == SQL_SUCCESS_WITH_INFO) {
        printIntoRow(hstmt, 20);
    }
    else {
        cout << "No Results.\n";
        system("CLS");

    }
    SQLFreeStmt(hstmt, SQL_CLOSE);
    cout << endl;
    system("pause");
}
```

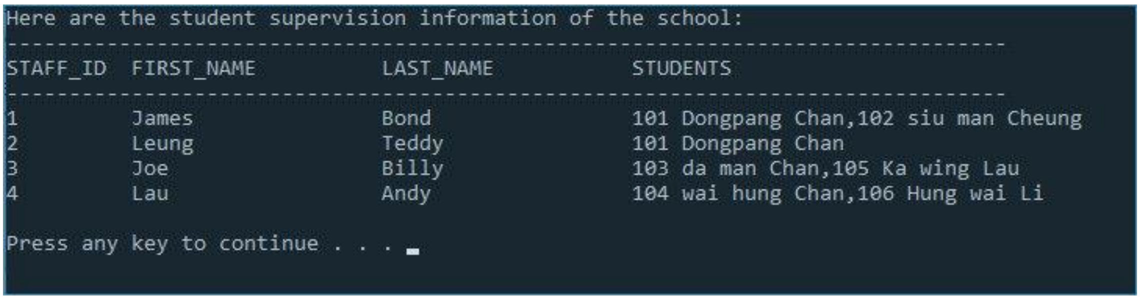


```
Here are the students you are supervising:
--------------------------------------------------------------------
STUDENT_ID  FIRST_NAME          LAST_NAME           PHONE
--------------------------------------------------------------------
103         da man              Chan                34567812
105         Ka wing             Lau                 56781234

Press any key to continue . . .
```

TODO5:

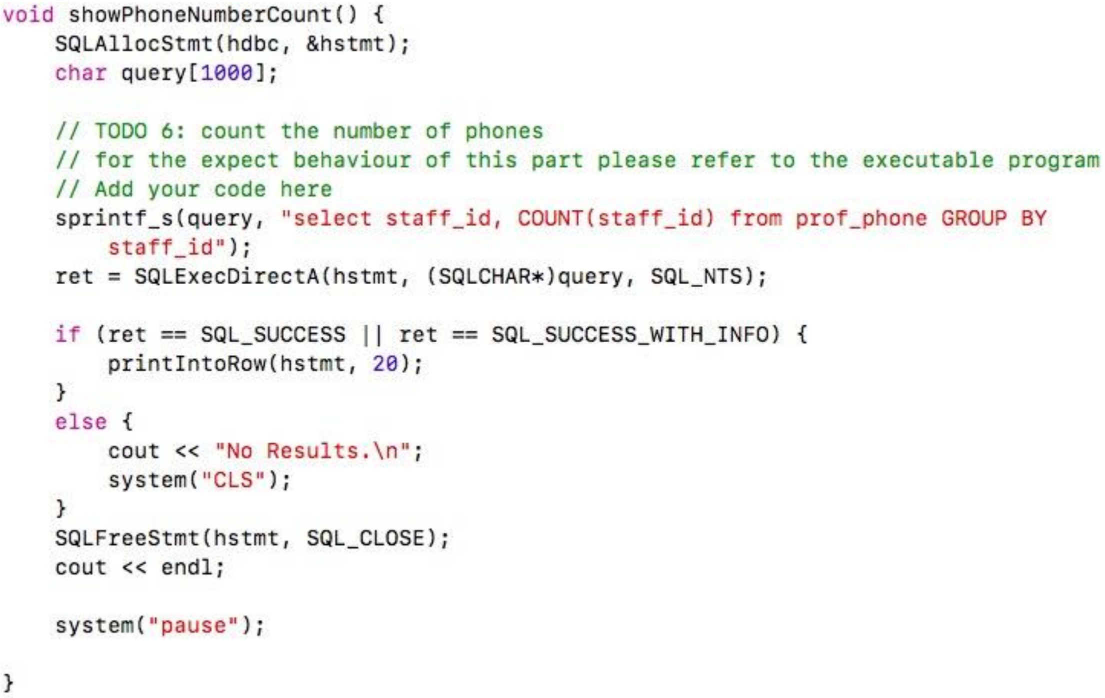


```
void showSuperGroup() {


    SQLAllocStmt(hdbc, &hstmt);
    char query[1000];

    system("CLS");
    cout << "Here are the student supervision information of the school:\n";

    // TODO 5: group the students (student_ID, last_name, first_name) according to the
        supervisors' staff_IDs, and display the student information in a list in
        ascending order of the student_IDs,
    // see the screen shot for the exact output. Hint: you may find the LISTAGG()
        function and the concatenation operator are useful.
    // Add your code here
    sprintf_s(query, "select prof.staff_ID, prof.first_name, prof.last_name,
        LISTAGG(ta.student_id || ' ' || ta.first_name || ' ' || ta.last_name,
        ',')WITHIN GROUP(ORDER BY ta.student_id) AS students from TA,supervise,prof
        where ta.student_id = supervise.student_id and prof.staff_id=supervise.staff_id
        GROUP BY (prof.staff_ID, prof.first_name, prof.last_name)");
    ret = SQLExecDirectA(hstmt, (SQLCHAR*)query, SQL_NTS);

    if (ret == SQL_SUCCESS || ret == SQL_SUCCESS_WITH_INFO) {
        printIntoRow(hstmt, 20);
    }
    else {
        cout << "No Results.\n";
        system("CLS");

    }
    SQLFreeStmt(hstmt, SQL_CLOSE);
    cout << endl;

    system("pause");

}
```

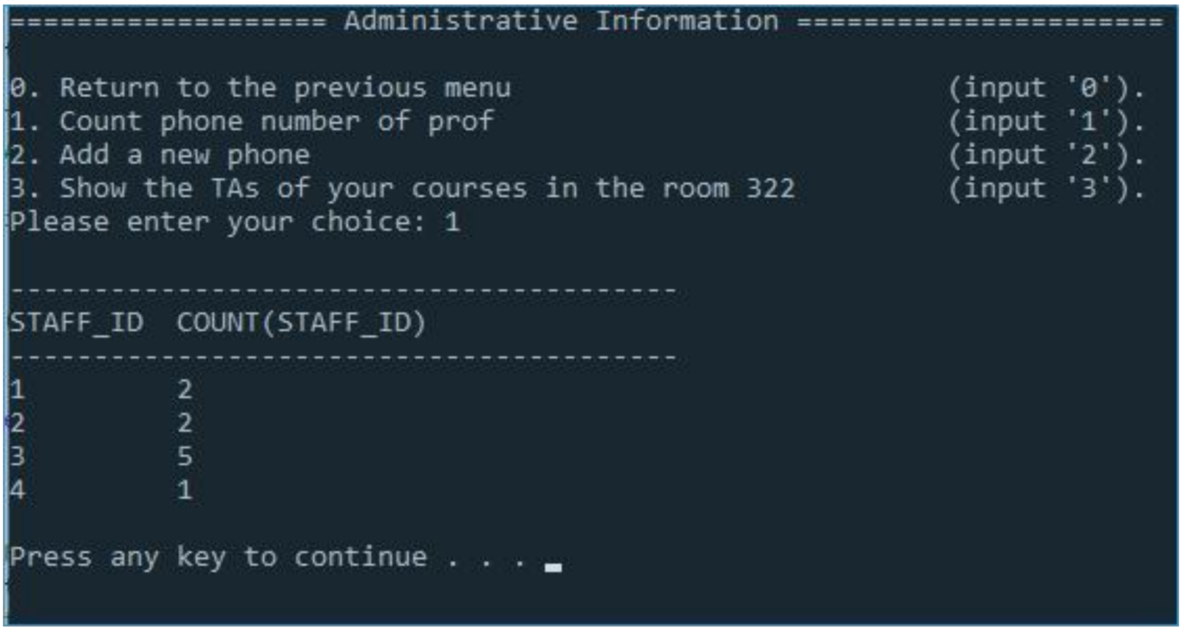


```
Here are the student supervision information of the school:
--------------------------------------------------------------------------------
STAFF_ID  FIRST_NAME          LAST_NAME           STUDENTS
--------------------------------------------------------------------------------
1         James               Bond                101 Dongpang Chan,102 siu man Cheung
2         Leung               Teddy               101 Dongpang Chan
3         Joe                 Billy               103 da man Chan,105 Ka wing Lau
4         Lau                 Andy                104 wai hung Chan,106 Hung wai Li

Press any key to continue . . .
```

TODO6:

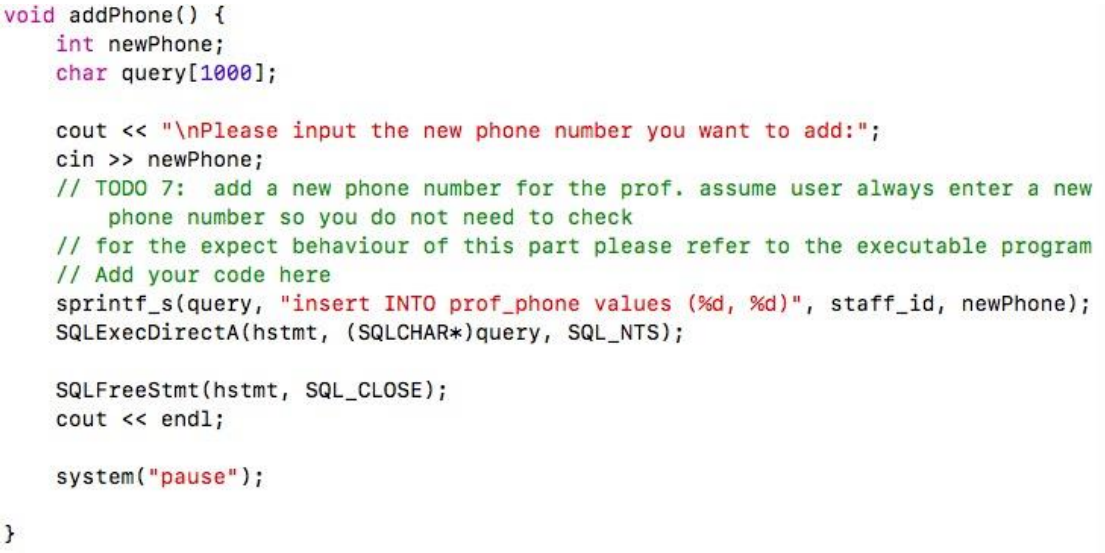


```
void showPhoneNumberCount() {
    SQLAllocStmt(hdbc, &hstmt);
    char query[1000];

    // TODO 6: count the number of phones
    // for the expect behaviour of this part please refer to the executable program
    // Add your code here
    sprintf_s(query, "select staff_id, COUNT(staff_id) from prof_phone GROUP BY
        staff_id");
    ret = SQLExecDirectA(hstmt, (SQLCHAR*)query, SQL_NTS);

    if (ret == SQL_SUCCESS || ret == SQL_SUCCESS_WITH_INFO) {
        printIntoRow(hstmt, 20);
    }
    else {
        cout << "No Results.\n";
        system("CLS");
    }
    SQLFreeStmt(hstmt, SQL_CLOSE);
    cout << endl;

    system("pause");

}
```

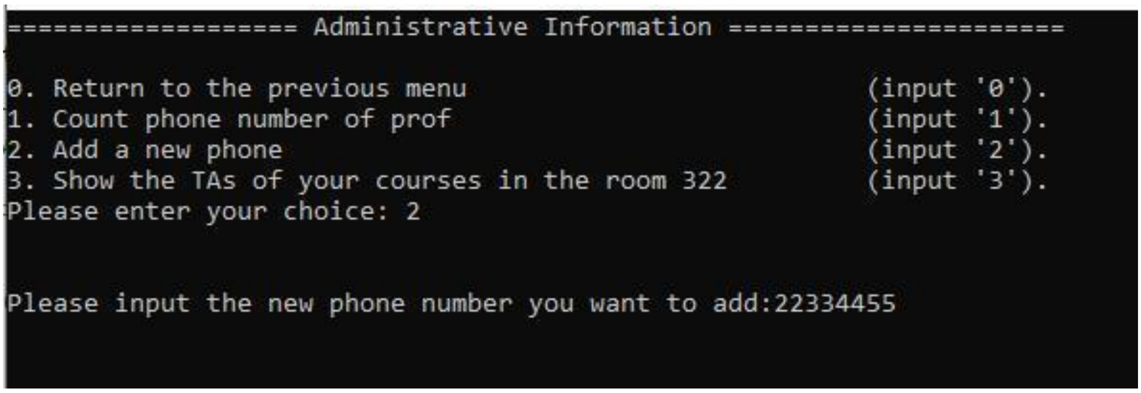


```
=================== Administrative Information ======================

0. Return to the previous menu                            (input '0').
1. Count phone number of prof                             (input '1').
2. Add a new phone                                        (input '2').
3. Show the TAs of your courses in the room 322           (input '3').
Please enter your choice: 1

----------------------------------------
STAFF_ID  COUNT(STAFF_ID)
----------------------------------------
1         2
2         2
3         5
4         1

Press any key to continue . . .
```

TODO7:

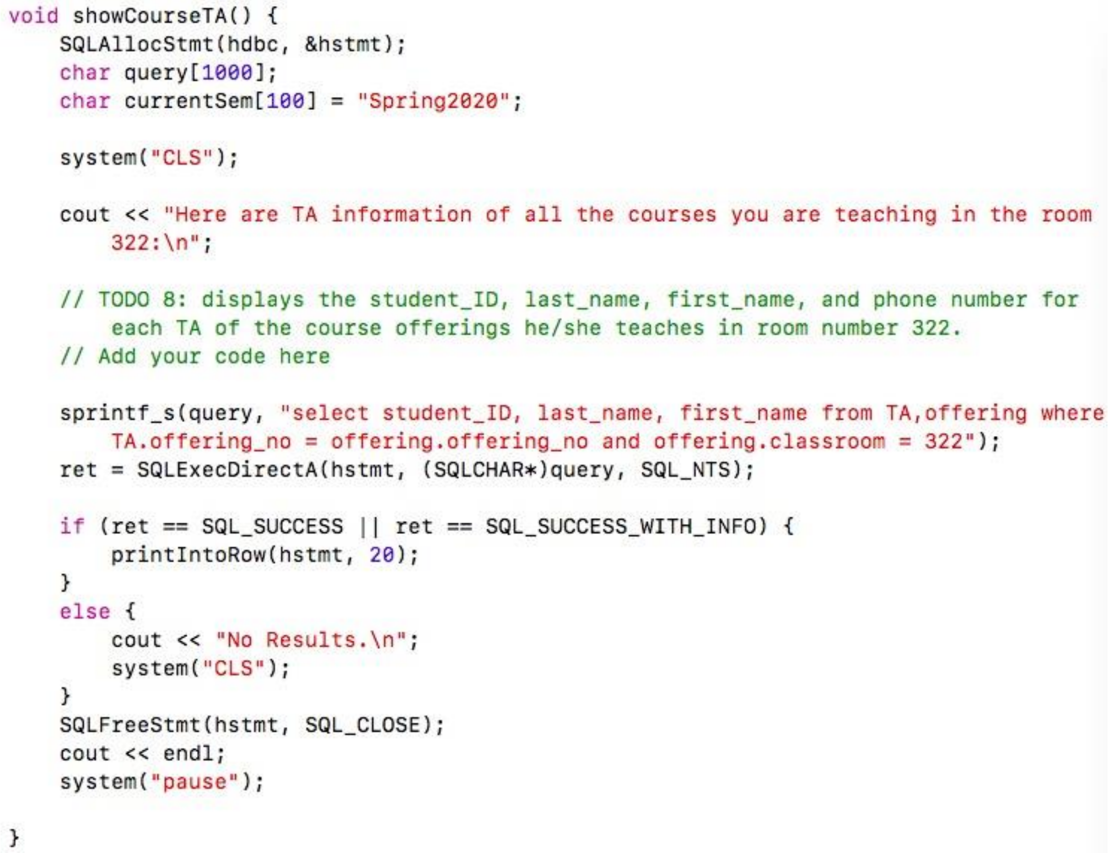


```
void addPhone() {
    int newPhone;
    char query[1000];

    cout << "\nPlease input the new phone number you want to add:";
    cin >> newPhone;
    // TODO 7:  add a new phone number for the prof. assume user always enter a new
        phone number so you do not need to check
    // for the expect behaviour of this part please refer to the executable program
    // Add your code here
    sprintf_s(query, "insert INTO prof_phone values (%d, %d)", staff_id, newPhone);
    SQLExecDirectA(hstmt, (SQLCHAR*)query, SQL_NTS);

    SQLFreeStmt(hstmt, SQL_CLOSE);
    cout << endl;

    system("pause");

}
```

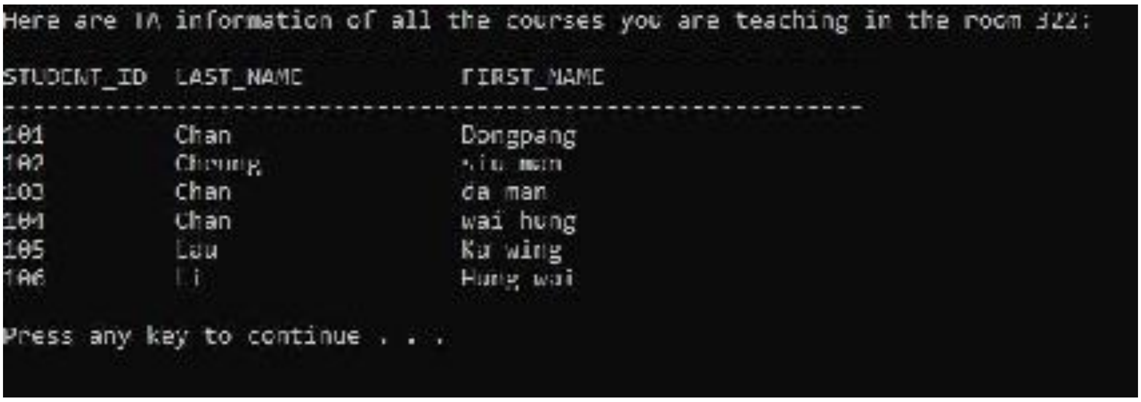


```
=================== Administrative Information =======================

0. Return to the previous menu                                 (input '0').
1. Count phone number of prof                                  (input '1').
2. Add a new phone                                             (input '2').
3. Show the TAs of your courses in the room 322                (input '3').
Please enter your choice: 2


Please input the new phone number you want to add:22334455
```

TODO8:



```
void showCourseTA() {
    SQLAllocStmt(hdbc, &hstmt);
    char query[1000];
    char currentSem[100] = "Spring2020";

    system("CLS");

    cout << "Here are TA information of all the courses you are teaching in the room
        322:\n";

    // TODO 8: displays the student_ID, last_name, first_name, and phone number for
        each TA of the course offerings he/she teaches in room number 322.
    // Add your code here

    sprintf_s(query, "select student_ID, last_name, first_name from TA,offering where
        TA.offering_no = offering.offering_no and offering.classroom = 322");
    ret = SQLExecDirectA(hstmt, (SQLCHAR*)query, SQL_NTS);

    if (ret == SQL_SUCCESS || ret == SQL_SUCCESS_WITH_INFO) {
        printIntoRow(hstmt, 20);
    }
    else {
        cout << "No Results.\n";
        system("CLS");
    }
    SQLFreeStmt(hstmt, SQL_CLOSE);
    cout << endl;
    system("pause");

}
```



```
Here are TA information of all the courses you are teaching in the room 322:

STUDENT_ID  LAST_NAME           FIRST_NAME
------------------------------------------------------------
101         Chan                Dongpang
102         Cheung              Siu man
103         Chan                da man
104         Chan                wai hung
105         Lau                 Ka wing
106         Li                  Hung wai

Press any key to continue . . .
```

(Our answer displays the student_ID, last_name, first_name, and phone number for each TA of the course offerings all professors teache in room number 322. The answer displays the student_ID, last_name, first_name, and phone number for each TA of the course offerings the current professor teaches in room number 322 is also right.)