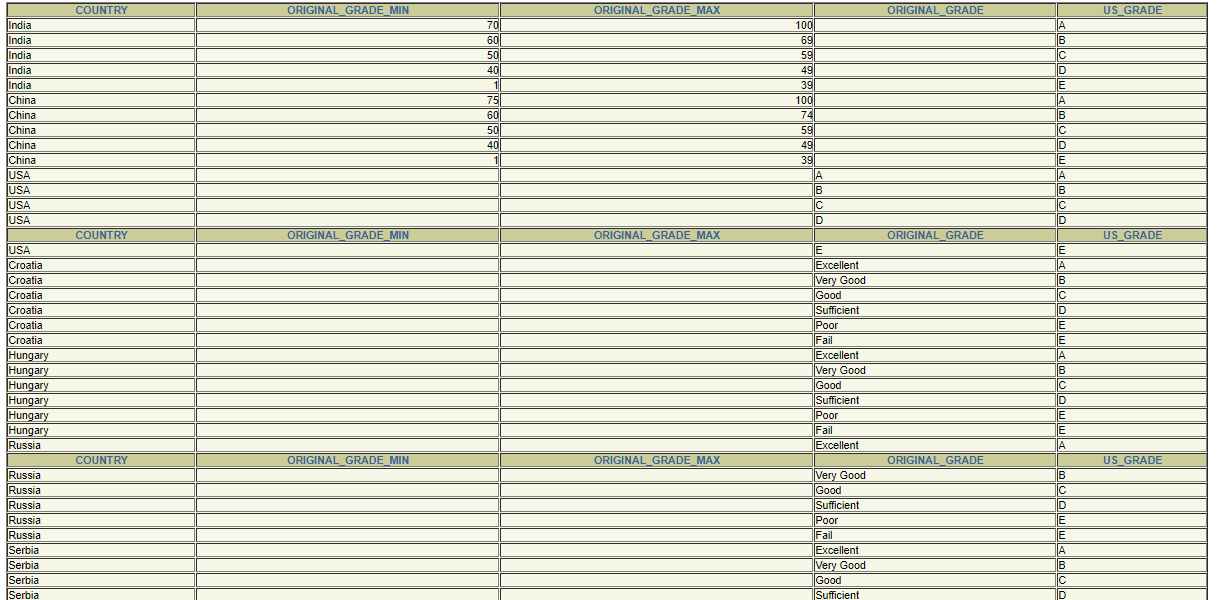
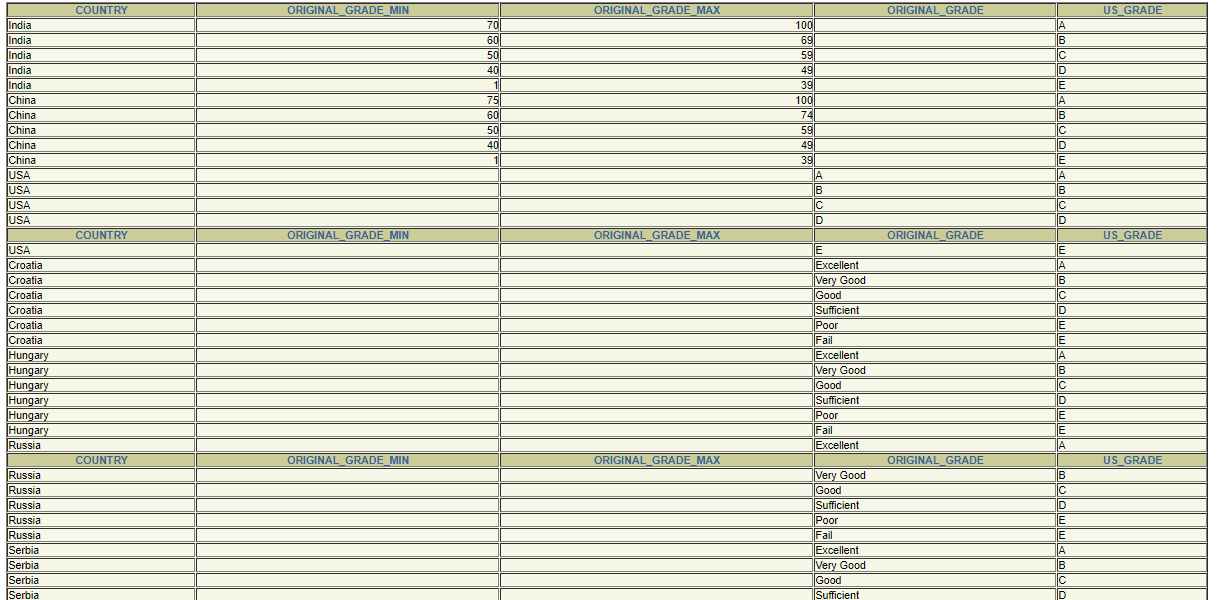
**Pseudo Code:**

* Create a table for grades mapping for various countries to corresponding US grade.

Table name is Grades\_mapping & it has columns country, min original grade (for minimum threshold of original grade), maximum original grade (for maximum threshold of original grade), original grade (for grade in words like excellent, good), corresponding US grade.

Table should look like this:





The mapping of grades of different counties to the corresponding US grade is as below:

|  |  |  |  |
| --- | --- | --- | --- |
| USA | India | China | Croatia, Russia, Slovakia, Hungary, Serbia, Czech Republic |
| A | 70%-100% | 75%-100% | Excellent |
| B | 60%-69% | 60%-74% | Very Good |
| C | 50%-59% | 50%-59% | Good |
| D | 40%-49% | 40%-49% | Sufficient |
| E | 1%-39% | 1%-39% | Poor/ Fail |

* Create a function for mapping grades to US grades. Function name is map\_grade\_to\_us\_equiv (country, original\_grade). Input parameters are country, original\_grade.

**Note:** (For maintaining modularity of code, I am taking only country and original grade as inputs of this function and later on procedure that will call this function, can have student name as input.)

// Select US grade from final\_grade table where country name is same as input country name, and grade is same as original grade.

// Grade that is being passed as an input could be between defined grade ranges or could be exact match with original grade column for different countries.

// throw an exception when input country name is not present in the table.

// this function will return corresponding US grade as an output.

* Create a procedure CALL\_FUNCTON () with student\_name, country and original\_grade as inputs. US grade, student\_name and country are as outputs.

//This procedure will call map\_grade\_to\_us\_equiv () function.

//Print student name, country name and corresponding US grade.

* Write a code to call the above procedure CALL\_FUNCTON ().

// declare country, student name and original grade as input parameters and us grade as output parameters.

//call procedure CALL\_FUNCTON ().

**Code:**

**For creating table:**

create table Grades\_mapping (

Country varchar (100),

original\_grade\_min float,

original\_grade\_max float,

original\_grade varchar (100),

US\_grade varchar (100)

);

**For inserting values into the table:**

insert into Grades\_mapping values ('India', 70, 100, null, 'A');

insert into Grades\_mapping values ('India', 60, 69, null, 'B');

insert into Grades\_mapping values ('India', 50, 59, null, 'C');

insert into Grades\_mapping values ('India', 40, 49, null, 'D');

insert into Grades\_mapping values ('India', 1, 39, null, 'E');

insert into Grades\_mapping values ('China', 75, 100, null, 'A');

insert into Grades\_mapping values ('China', 60, 74, null, 'B');

insert into Grades\_mapping values ('China', 50, 59, null, 'C');

insert into Grades\_mapping values ('China', 40, 49, null, 'D');

insert into Grades\_mapping values ('China', 1, 39, null, 'E');

insert into Grades\_mapping values ('USA', null, null, 'A', 'A');

insert into Grades\_mapping values ('USA', null, null, 'B', 'B');

insert into Grades\_mapping values ('USA', null, null, 'C', 'C');

insert into Grades\_mapping values ('USA', null, null, 'D', 'D');

insert into Grades\_mapping values ('USA', null, null, 'E', 'E');

insert into Grades\_mapping values ('Croatia', null, null, 'Excellent', 'A');

insert into Grades\_mapping values ('Croatia', null, null, 'Very Good', 'B');

insert into Grades\_mapping values ('Croatia', null, null, 'Good', 'C');

insert into Grades\_mapping values ('Croatia', null, null, 'Sufficient', 'D');

insert into Grades\_mapping values ('Croatia', null, null, 'Poor', 'E');

insert into Grades\_mapping values ('Croatia', null, null, 'Fail', 'E');

insert into Grades\_mapping values ('Hungary', null, null, 'Excellent', 'A');

insert into Grades\_mapping values ('Hungary', null, null, 'Very Good', 'B');

insert into Grades\_mapping values ('Hungary', null, null, 'Good', 'C');

insert into Grades\_mapping values ('Hungary', null, null, 'Sufficient', 'D');

insert into Grades\_mapping values ('Hungary', null, null, 'Poor', 'E');

insert into Grades\_mapping values ('Hungary', null, null, 'Fail', 'E');

insert into Grades\_mapping values ('Russia', null, null, 'Excellent', 'A');

insert into Grades\_mapping values ('Russia', null, null, 'Very Good', 'B');

insert into Grades\_mapping values ('Russia', null, null, 'Good', 'C');

insert into Grades\_mapping values ('Russia', null, null, 'Sufficient', 'D');

insert into Grades\_mapping values ('Russia', null, null, 'Poor', 'E');

insert into Grades\_mapping values ('Russia', null, null, 'Fail', 'E');

insert into Grades\_mapping values ('Serbia', null, null, 'Excellent', 'A');

insert into Grades\_mapping values ('Serbia', null, null, 'Very Good', 'B');

insert into Grades\_mapping values ('Serbia', null, null, 'Good', 'C');

insert into Grades\_mapping values ('Serbia', null, null, 'Sufficient', 'D');

insert into Grades\_mapping values ('Serbia', null, null, 'Poor', 'E');

insert into Grades\_mapping values ('Serbia', null, null, 'Fail', 'E');

insert into Grades\_mapping values ('Slovakia', null, null, 'Excellent', 'A');

insert into Grades\_mapping values ('Slovakia', null, null, 'Very Good', 'B');

insert into Grades\_mapping values ('Slovakia', null, null, 'Good', 'C');

insert into Grades\_mapping values ('Slovakia', null, null, 'Sufficient', 'D');

insert into Grades\_mapping values ('Slovakia', null, null, 'Poor', 'E');

insert into Grades\_mapping values ('Slovakia', null, null, 'Fail', 'E');

insert into Grades\_mapping values ('Czech Republic', null, null, 'Excellent', 'A');

insert into Grades\_mapping values ('Czech Republic', null, null, 'Very Good', 'B');

insert into Grades\_mapping values ('Czech Republic', null, null, 'Good', 'C');

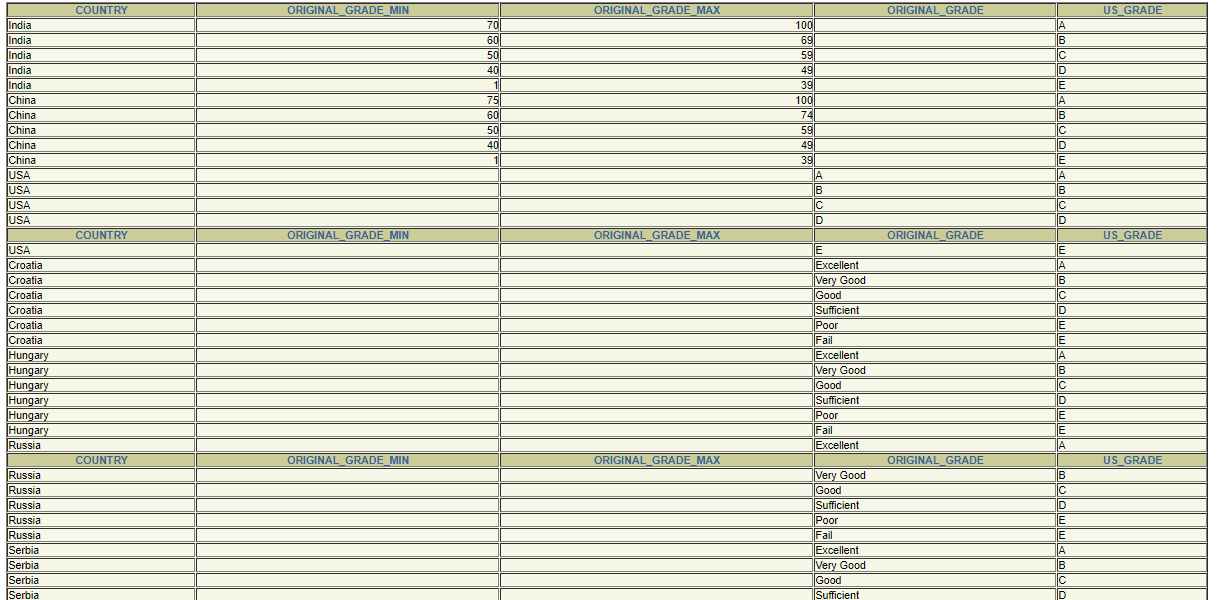
insert into Grades\_mapping values ('Czech Republic', null, null, 'Sufficient', 'D');

insert into Grades\_mapping values ('Czech Republic', null, null, 'Poor', 'E');

insert into Grades\_mapping values ('Czech Republic', null, null, 'Fail', 'E');

**To view the table:**

select \* from Grades\_mapping;



Note: I haven’t attached screenshots of whole table. This is just one screenshot (some part of the table).

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**Function for grade mapping:**

show errors;

Create or replace function map\_grade\_to\_us\_equiv (e\_country in varchar, o\_grade in varchar)

return varchar IS final\_grade varchar (100);

BEGIN

select US\_GRADE into final\_grade from Grades\_mapping where e\_country= COUNTRY AND ((to\_number(o\_grade) BETWEEN original\_grade\_min AND original\_grade\_max) OR o\_grade= original\_grade);

return final\_grade;

exception

when no\_data\_found then

dbms\_output.put\_line ('no such country');

return null;

End;

**=====================================================================================**

**Procedure to call above function:**

Create or replace procedure CALL\_FUNCTON (s\_name IN OUT varchar, cntry IN OUT varchar, orig\_grade IN varchar, us\_g OUT varchar) IS

Begin

us\_g: = map\_grade\_to\_us\_equiv (cntry, orig\_grade);

dbms\_output.put\_line ('student name is: ' || s\_name || ' country name is: ' || cntry || ' Corresponding US grade is: ' || us\_g);

End;

**=================================================================================**

**Call above procedure:**

set SERVEROUTPUT on;

show errors;

Declare

param1 varchar (100): = 'shweta';

param2 varchar (100): = 'Russia';

param3 varchar (100): = 'Poor';

us\_g varchar (100);

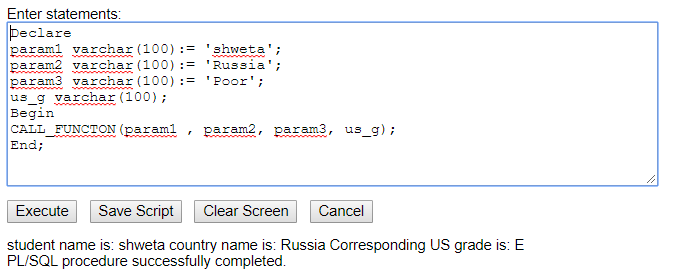
Begin

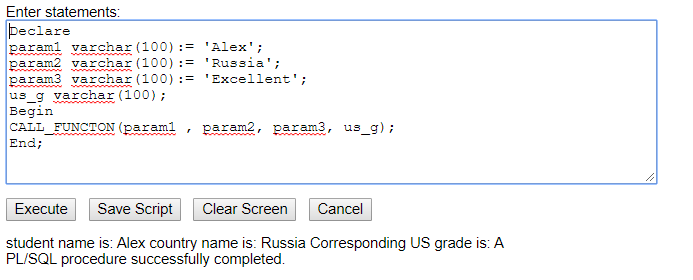
CALL\_FUNCTON (param1, param2, param3, us\_g);

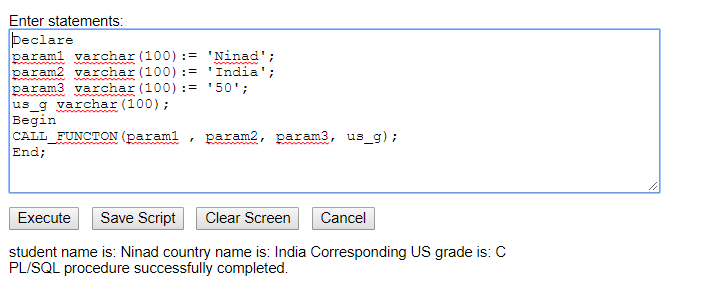
End;

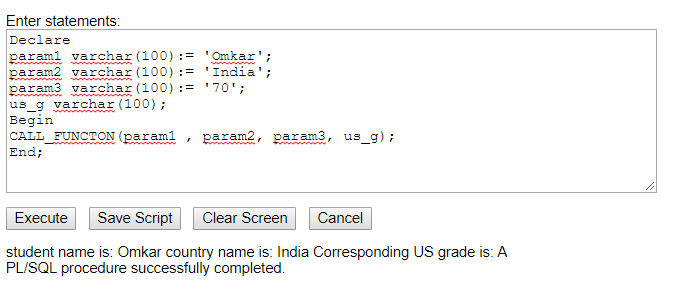
**=====================================================================================**

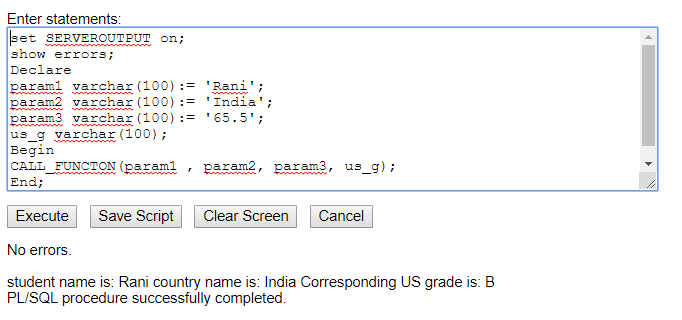
**Screenshots of queries & their outputs for obtaining US grade corresponding to grades of various countries present in the table:**

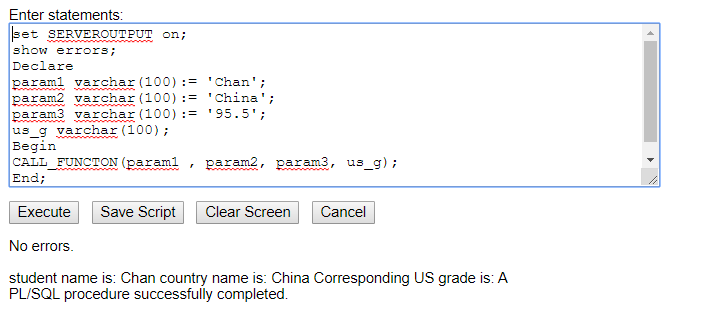


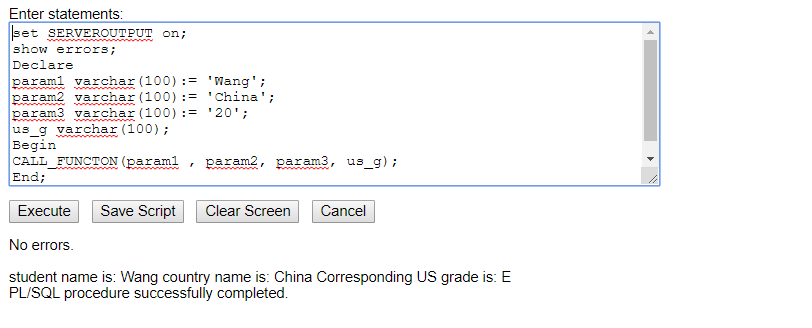


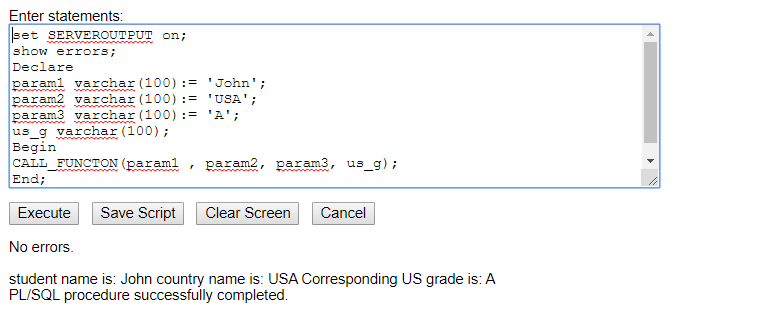


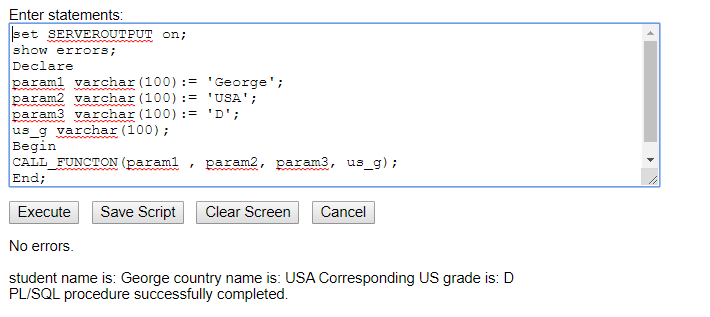


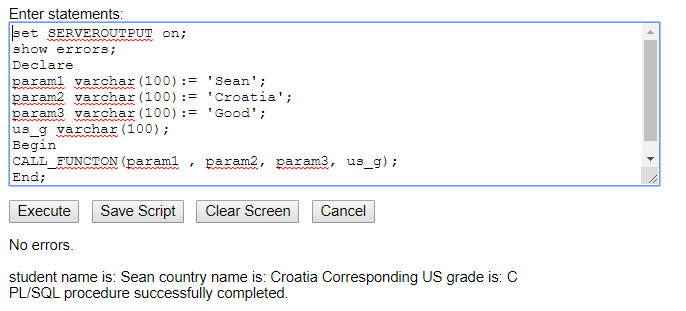


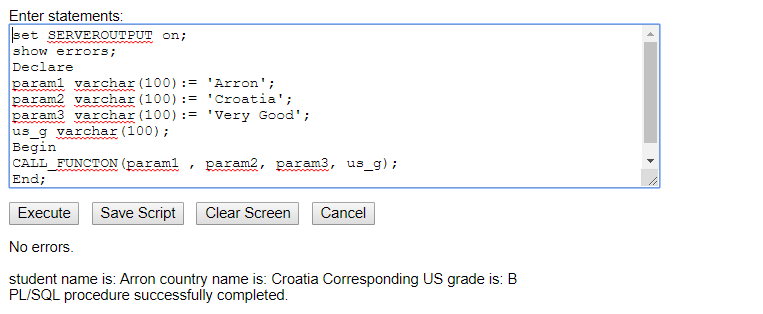


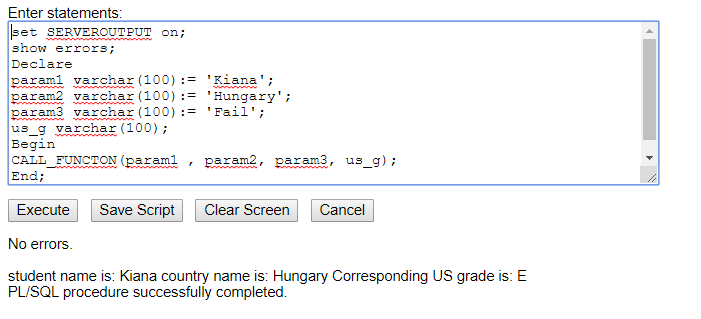


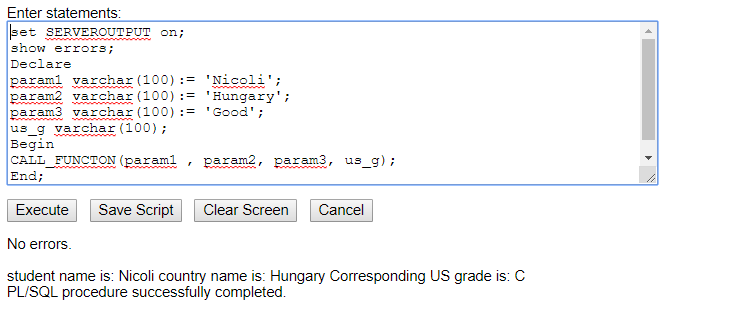


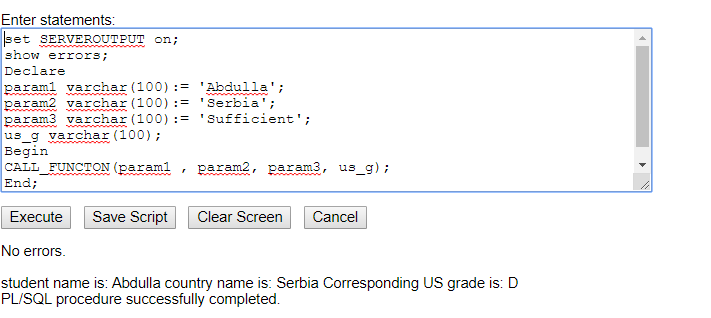


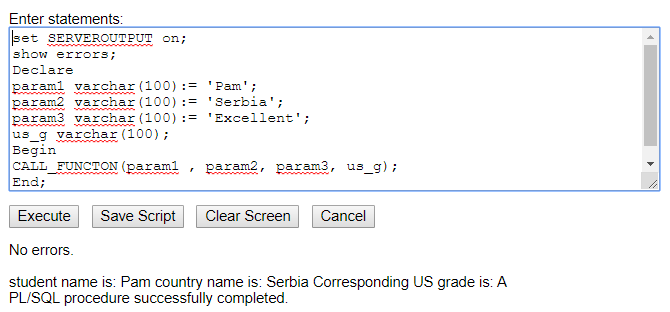


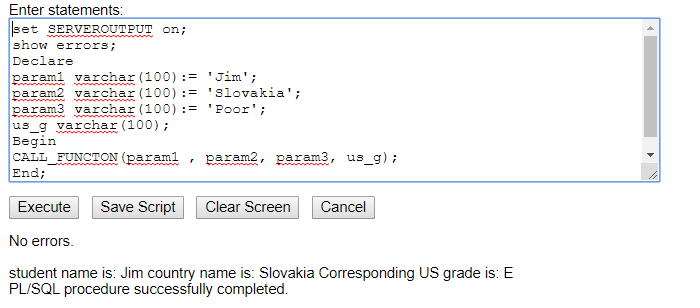


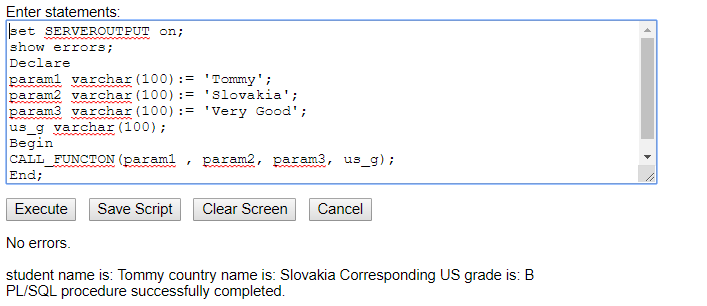


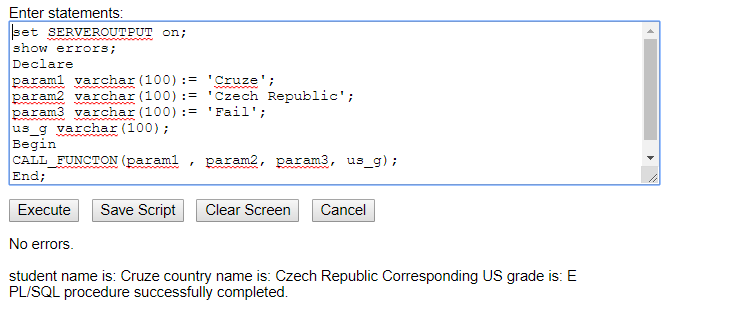


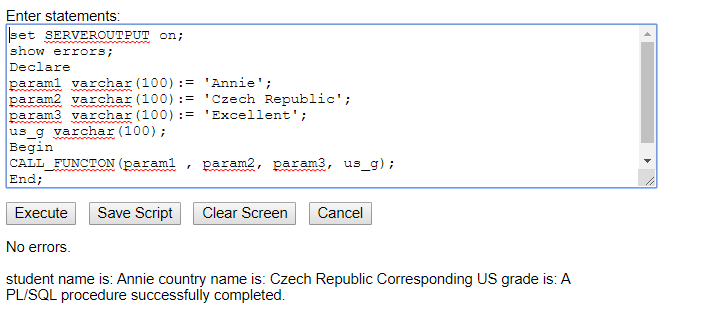


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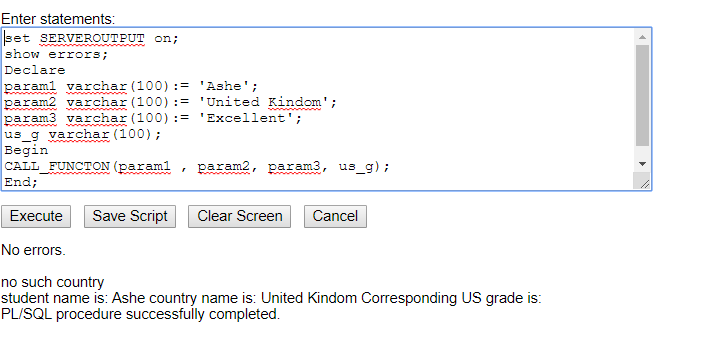








**Screenshot of query & its output for obtaining US grade corresponding to the grade of the country which is not present in the table:**



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