

IS664 Database Programming Fall 2022 hlocklear@pace.edu

EXAM

Midterm Exam

STORED PROGRAM FUNDAMENTALS

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Exam Instructions

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- **This is your midterm exam**, and it is designed to evaluate your ability to problem solve in a SQL context by creating SQL procedures.
- The exam utilizes your **asteroids** database.
- You have **2.5 hours** to complete the exam.
- You **may** utilize all your text and digital resources for the exam.
- You **may** utilize any number of helper functions in your procedure.
- You **must be** present to take the exam.
- You **must** utilize one or more cursors for all data retrieval.
- You **may not** include any **SELECT INTO** statements in your procedure.
- You **may not** utilize any queries which contain aggregate functions or perform concatenation or mathematical operations.
- Test your procedure as shown on slide 4.
- Submit as single **.sql** file (**[your last name].sql**).

Task: Stored Procedure

Create the stored procedure **asteroid_prospectus** which accepts a country name and an asteroid designation and calculates the closest and most distant asteroid, belonging to the specified country, to the specified asteroid. Additionally, the procedure provides an analysis of the asteroid's composition based on the following rules.

Feature	Value	Analysis
Surface	Medium or Medium-Soft	IDEAL
	Soft	ACCEPTABLE
	Hard or Hard-Medium	UNACCEPTABLE
Water	No-Content	ACCEPTABLE
	Low-Content	IDEAL
	Medium-Content or High-Content	UNACCEPTABLE
Content_Rock	50 or less	ACCEPTABLE
Content_Rock	more than 50	UNACCEPTABLE
Content_Metal	more than 55	ACCEPTABLE
Content_Metal	55 or less	UNACCEPTABLE

Task: Expected Output

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```
CALL asteroid_prospectus('RUSSIA','C-b380-k');  
CALL asteroid_prospectus('US','C-b380-k');  
CALL asteroid_prospectus('UK','C-b380-k');  
CALL asteroid_prospectus('CHINA','C-b380-k');
```

```
MySQL 8.0 Command Line Client  
+-----+  
| MSG |  
+-----+  
| C-b380-k is Closest To C-f2088-n(0.6700) and Most Distant From M-h3179-k(4.8900) -> SURFACE: IDEAL WATER: UNACCEPTABLE ROCK: UNACCEPTABLE METAL: UNACCEPTABLE |  
+-----+  
1 row in set (0.00 sec)  
  
Query OK, 0 rows affected (0.01 sec)  
  
+-----+  
| MSG |  
+-----+  
| C-b380-k is Closest To C-f3770-k(0.2800) and Most Distant From M-h305-n(4.5500) -> SURFACE: IDEAL WATER: UNACCEPTABLE ROCK: UNACCEPTABLE METAL: UNACCEPTABLE |  
+-----+  
1 row in set (0.00 sec)  
  
Query OK, 0 rows affected (0.01 sec)  
  
+-----+  
| MSG |  
+-----+  
| C-b380-k is Closest To C-a2440-j(0.8100) and Most Distant From M-d2204-j(4.3500) -> SURFACE: IDEAL WATER: UNACCEPTABLE ROCK: UNACCEPTABLE METAL: UNACCEPTABLE |  
+-----+  
1 row in set (0.00 sec)  
  
Query OK, 0 rows affected (0.01 sec)  
  
+-----+  
| MSG |  
+-----+  
| C-b380-k is Closest To C-e4832-l(0.9700) and Most Distant From M-b2399-n(4.3100) -> SURFACE: IDEAL WATER: UNACCEPTABLE ROCK: UNACCEPTABLE METAL: UNACCEPTABLE |  
+-----+  
1 row in set (0.00 sec)
```