

# 1. Dynamic SQL Query Builder

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## Problem Statement:

Create a function to dynamically build an SQL query. The function should take a table name, column names as positional arguments (**\*args**), and conditions as keyword arguments (**\*\*kwargs**). If no columns are provided, the query should default to selecting all columns (**\***).

-> def build\_query(table, \*columns, \*\*conditions):

## Sample Input:

```
build_query("users", "id", "name", "email", status="active", role="admin")
```

## Sample Output:

```
SELECT id, name, email FROM users WHERE status='active' AND role='admin'
```

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# 2. Dynamic API Request Simulator

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## Problem Statement:

Simulate an API request function that takes a URL as a required parameter, optional additional data as positional arguments (**\*args**), and headers or query parameters as keyword arguments (**\*\*kwargs**). Print the URL, additional data, and headers/parameters.

-> def api\_request(url, \*args, \*\*kwargs):

## Sample Input:

```
api_request("https://api.example.com/data", "extra_info", token="123ABC",  
timeout=30)
```

## Sample Output:

```
Requesting: https://api.example.com/data  
Args (for optional data): ('extra_info',)  
Headers/Params: {'token': '123ABC', 'timeout': 30}
```

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## 3. Custom Event Logger

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### Problem Statement:

Write a function that logs events with varying levels of details. Use positional arguments (*\*args*) for optional event details and keyword arguments (*\*\*kwargs*) for metadata about the event.

-> def log\_event(event\_name, \*details, \*\*metadata):

### Sample Input:

```
log_event("UserLogin", "Attempt by admin", ip="192.168.1.1", status="Success",
timestamp="2024-11-20")
```

### Sample Output:

```
Event: UserLogin
Details: Attempt by admin
Metadata:
  ip: 192.168.1.1
  status: Success
  timestamp: 2024-11-20
```

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## 4. Dynamically Configurable Web Page Generator

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### Problem Statement:

Design a function that generates a simple web page with a title, optional sections (*\*args*), and optional styles (*\*\*kwargs*). The sections will be enclosed in `<section>` tags, and styles should be converted to inline CSS.

-> def generate\_webpage(title, \*sections, \*\*styles):

### Sample Input:

```
generate_webpage(
    "My Website",
    "Welcome to my website!",
    "Here is some content.",
    color="blue", font_size="16px", background_color="lightgray"
)
```

## Sample Output:

```
<html>
<head>
  <title>My Website</title>
  <style>color: blue; font_size: 16px; background_color: lightgray;</style>
</head>
<body>
  <section>Welcome to my website!</section>
  <section>Here is some content.</section>
</body>
</html>
```

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## 5. Multi-Language Translator

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### Problem Statement:

Create a function to translate a phrase into multiple languages. Use **\*args** to specify the target languages and **\*\*kwargs** to provide translations for each language. If a translation is not available for a language, return a default message.

-> def translate(phrase, \*languages, \*\*translations):

### Sample Input:

```
translate("greet", "en", "es", "de", en="Hello", es="Hola", fr="Bonjour")
```

### Sample Output:

```
{'en': 'Hello', 'es': 'Hola', 'de': "[Translation for 'de' unavailable]"}
```