

Upgraded Car Park Availability API

API Description: The Upgraded Carpark Availability API provides real-time information about parking lot availability. It allows users to retrieve data about available parking lots near their location based on the carpark number, date, and time.

Base URL: <https://api.data.gov.sg/v1/transport/lot-finder>

Endpoints:

1. Retrieve Car Park Availability near user location:
 - Description: Retrieve car parks with empty lots near user's input location.
 - Endpoint: GET /carparks/{x_user_coord}/{y_user_coord}
 - Parameters:
 - a. x_user_coord (required, float): x-coordinate of user's input location
 - b. y_user_coord (required, float): y-coordinate of user's input location
 - Response:
 - a. carpark_avail_data (array): An array of car park availability data.
 - i. carpark_number (string): The unique identifier of the car park.
 - ii. address (string): The address of the car park
 - iii. update_datetime (string): The date and time of the availability information.
 - iv. x_coord (float): The x-coordinate of the carpark location.
 - v. y_coord (float): The y-coordinate of the carpark location.
 - vi. lot_type (string): The type of parking lot.
 - vii. lots_available (integer): The number of available parking lots.

Necessary APIs required

1. Car Park Availability API
2. HDB Carpark Information API
3. Google Maps Geolocation API

Car Park Availability API

API Description: The Upgraded Carpark Availability API provides real-time information about parking lot availability. It allows users to retrieve data about available parking lots based on the carpark number, date, and time.

Base URL: <https://api.data.gov.sg/v1/transport/carpark-availability>

Endpoints:

1. Retrieve Car Park Availability:

- Description: Retrieves the availability of parking lots for a specific carpark number and datetime.
- Endpoint: GET /carparks/{carpark_number}
- Parameters:
 - a. carpark_number (required, string): The unique identifier of the car park.
- Response:
 - a. carpark_avail_data (array): An array of car park availability data.
 - i. carpark_number (string): The unique identifier of the car park.
 - ii. update_datetime (string): The date and time of the availability information.
 - iii. lot_type (string): The type of parking lot.
 - iv. lots_available (integer): The number of available parking lots.
 - v. total_lots (integer): The total number of parking lots.

HDB Carpark Information API

API Description: The HDB Carpark Information API provides up-to-date information about specific details of each HDB carpark in Singapore

Base URL: <https://api.data.gov.sg/v1/transport/carpark-details>

Endpoints:

1. Retrieve Car Park Information:

- Description: Retrieves detailed information about a specific car park
- Endpoint: GET /carparks/{carpark_number}
- Parameters:
 - a. carpark_number (required, string): The unique identifier of the car park.
- Response:
 - a. carpark_info_data (array): An array of carpark information data.
 - i. carpark_number (string): The unique identifier of the car park.
 - ii. address (string): The address of the car park.
 - iii. x_coord (float): The x-coordinate of the carpark location.
 - iv. y_coord (float): The y-coordinate of the carpark location.
 - v. car_park_type (string): The type of car park.
 - vi. type_of_parking_system (string): The type of parking system.
 - vii. short_term_parking (string): The availability of short-term parking.
 - viii. free_parking (string): The availability of free parking.
 - ix. night_parking (string): The availability of night parking.

- x. car_park_decks (integer): The number of car park decks.
- xi. gantry_height (float): The height of the car park gantry.
- xii. car_park_basement (string): Indicates if the car park has a basement.

Google Maps Geolocation API

API Description: The Google Maps Geolocation API provides information about the desired/current location of the user.

URL: <https://developers.google.com/maps/documentation/javascript/geolocation>

Description: Using the google maps API, we can determine the user's current location or desired destination to find the nearest car park with empty lots.