

# Smart Parking System - Python Code

## Smart Parking System Code

```
class ParkingSpot:
    def __init__(self, spot_id):
        self.spot_id = spot_id
        self.is_occupied = False

    def occupy(self):
        self.is_occupied = True

    def vacate(self):
        self.is_occupied = False

    def __str__(self):
        status = "Occupied" if self.is_occupied else "Available"
        return f"Spot {self.spot_id}: {status}"

class SmartParkingSystem:
    def __init__(self, total_spots):
        self.spots = [ParkingSpot(i + 1) for i in range(total_spots)]

    def show_available_spots(self):
        print("\nAvailable Parking Spots:")
        available = [spot for spot in self.spots if not spot.is_occupied]
        if not available:
            print("No spots available.")
        else:
            for spot in available:
                print(spot)

    def park_vehicle(self):
        for spot in self.spots:
            if not spot.is_occupied:
                spot.occupy()
                print(f"Vehicle parked at spot {spot.spot_id}.")
                return
        print("No available spots to park.")

    def remove_vehicle(self, spot_id):
        if 1 <= spot_id <= len(self.spots):
            spot = self.spots[spot_id - 1]
            if spot.is_occupied:
                spot.vacate()
                print(f"Vehicle removed from spot {spot_id}.")
            else:
                print(f"Spot {spot_id} is already vacant.")
        else:
```

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```
print("Invalid spot ID.")

# Example usage
if __name__ == "__main__":
    system = SmartParkingSystem(total_spots=5)

    while True:
        print("\n--- Smart Parking System ---")
        print("1. Show Available Spots")
        print("2. Park Vehicle")
        print("3. Remove Vehicle")
        print("4. Exit")

        choice = input("Enter your choice: ")

        if choice == '1':
            system.show_available_spots()
        elif choice == '2':
            system.park_vehicle()
        elif choice == '3':
            try:
                spot_id = int(input("Enter spot ID to remove vehicle from: "))
                system.remove_vehicle(spot_id)
            except ValueError:
                print("Invalid input. Please enter a number.")
        elif choice == '4':
            print("Exiting Smart Parking System.")
            break
        else:
            print("Invalid choice. Please try again.")
```