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MPCS 53001 Databases  
Final Project – Part 1

**Requirements:** A conceptual database, for rock climbers to track the history and development of rock-climbing routes, as well as their journal of completed climbs.

- A list of climbers is stored
- Climbers can log routes that they have successfully climbed
- Route developers can log new routes that they have established
- The database design should facilitate querying to gain insights and info

### Specifications:

Users should be able to query the database to gain an understanding of routes, areas, history, and journaling of their climbing.

**Context:**

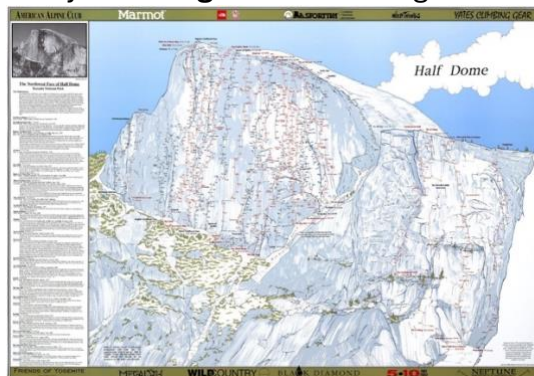
Rock climbing routes can be conceptualized as hiking trails, with more emphasis on the “author”, the person who first pioneered the route and drilled fall protection anchors into the rock.

Each climbing area (a mountain or collection of mountains) often contains many cliff formations, each of which contains multiple distinct routes, or lines where an ascent of the mountain has been established.

Two **cliff faces**, Northwest Territories and Summit Crag (circled red), within a **Climbing area**:



Many **climbing routes** are diagrammed on a single **cliff face**:



### Entity relationships by name:

1. **Climbers** are identified by a **Climber ID**. The DB must record their name, body weight, date of birth, age, routes successfully climbed, and the rock-climbing destinations visited.
2. Climbers who pioneer new routes must have a **route developer profile**. The DB should record a developer ID, the routes they have developed, their contact email address, and the date they started developing routes.
3. Each **climber** can have at most one **developer profile**.
4. **Climbing routes** are identified by their height (route length), **number of protection bolts, route name, and date of first ascent**.
5. Each **climber** can climb one or more routes, tracking the date they climbed it, and the difficulty they perceived in the route.
6. Route developers **establish** new routes by installing fall protection systems into rock. They assign each new route a **name, and description**, and track the **date** they developed the route.
7. Each route exists at a **cliff face**. The DB tracks **location, rock type, sun exposure, and photos** of the cliff face.
8. Each cliff face is in a **climbing area**, identified by a **Region ID**. The DB should track the number of routes at each location, the **restaurants nearby, the closest airports, and campgrounds nearby**.
9. Each developer has a climbing location they live nearest to.
10. **Equipment**: Records the equipment required on specific routes. Identify Equipment by ID, recommended brands/models, and specifications

### Queries that can be answered by DB:

1. Which French **climbers** have climbed the **route** "28 years of climbing"
2. Which **routes** at **Joshua Tree** are at most as hard as 5.10a difficulty
3. Which **routes** are at most 5 years old and require **sport clips**?
4. What are the 3 most popular (most ascent) granite **climbs** in South America
5. Which **climber** has climbed the most difficult **route** in the United States?
6. Which **routes** have been established by a **Route Developer** who has been setting routes for more than 6 years and are easier than **5.7** difficulty?
7. What was the first **route** established in **North America**?
8. Give me a list of all retired (> 65 Y.O.) climbers who have climbed in **Yosemite** in the last two weeks
9. List all routes at the **Red River Gorge** sorted by difficulty.