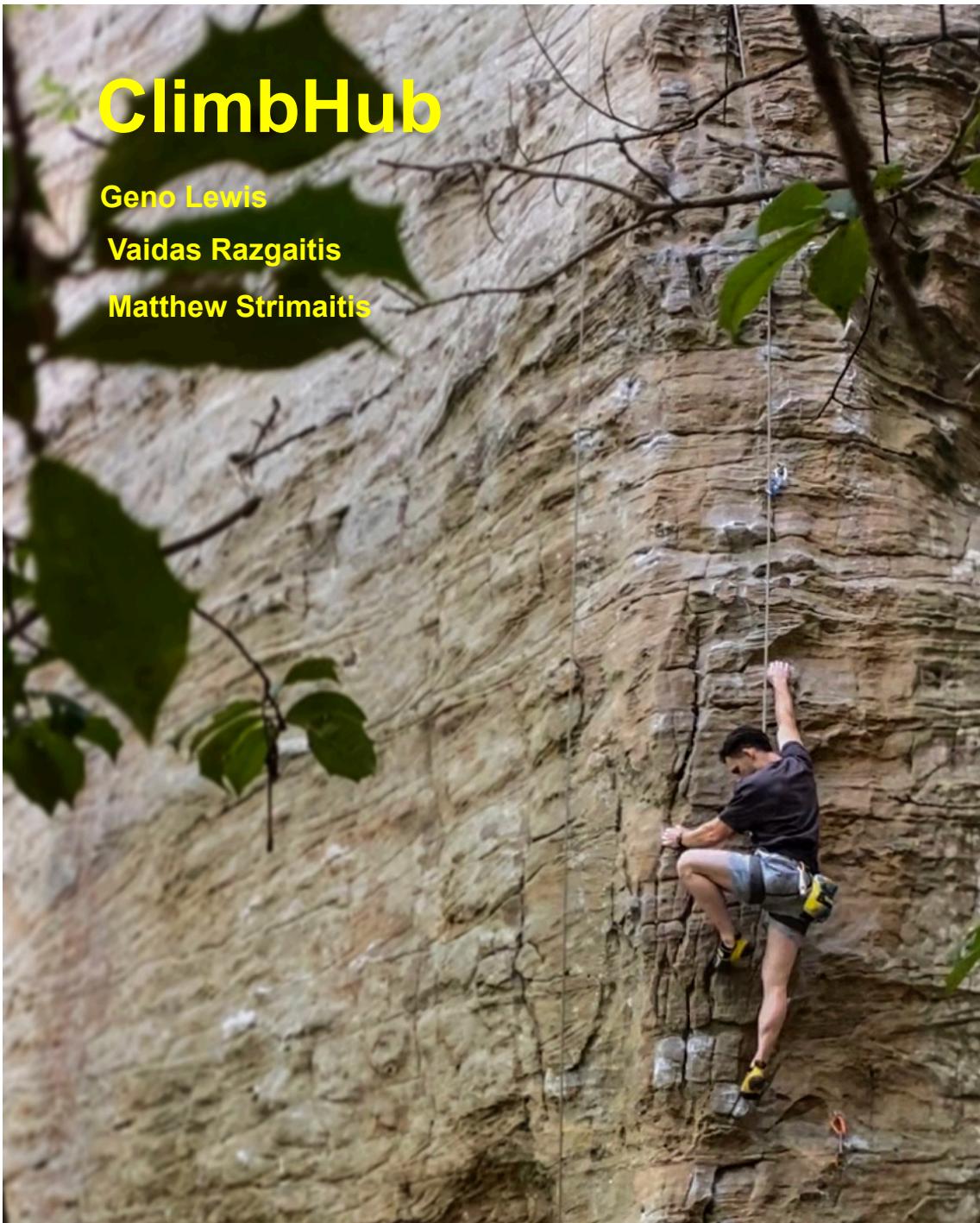


# ClimbHub

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A.) Description:

**Topic:**

For this project we created a database for rock climbers to document the development of climbing routes as well as track climbs and route information.

In the early stages of the design phase we discussed the types of broad relationships we'd want to track such as establishing or climbing a route. This helped inform our design decisions when entering the conceptual database design phase.

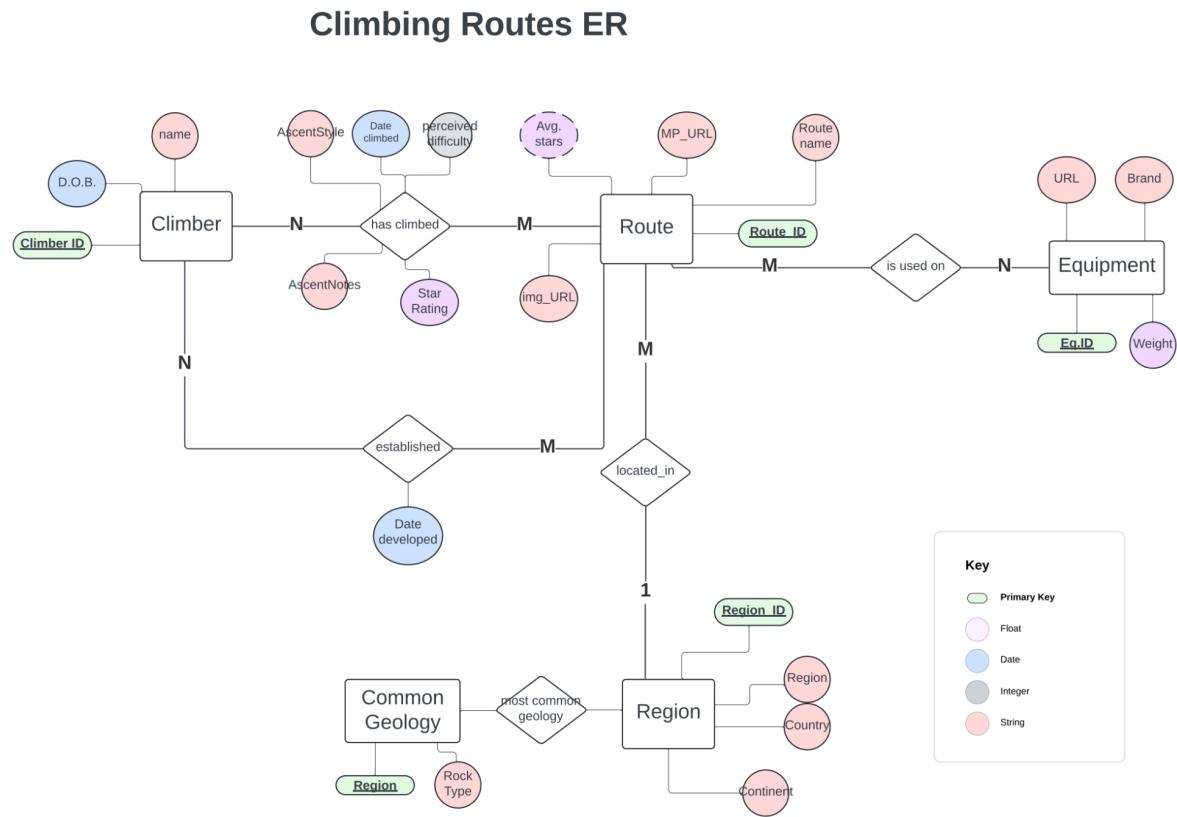
**Web Specifications:**

Users can interact with the data and relationships between data in the database by selecting static queries, giving insight to:

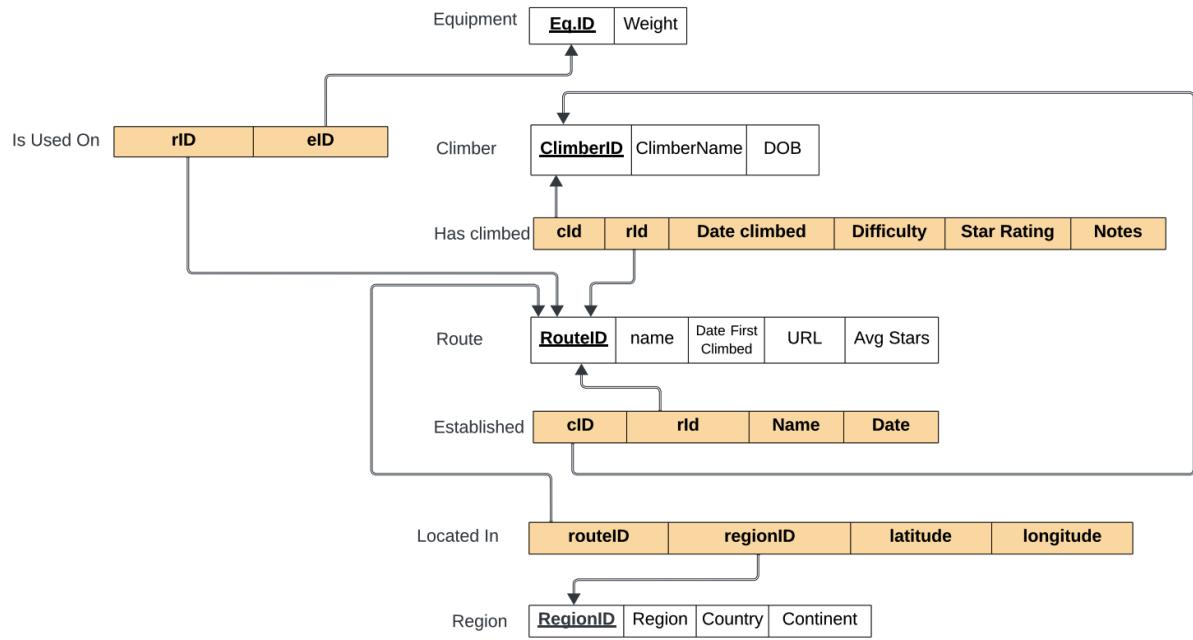
- Available climbing routes
- Difficulty of a route and gear required for climbing
- Filtering and ordering routes for trip planning
- Which climbers have climbed specific routes

In addition, users can use the “routes”, “regions” or “climbers” buttons to return a complete list of all entries in these tables. Furthermore, the select fields in the leftmost box allow users to dynamically query routes above, equal to or below a certain rating. These results are ordered by rating in descending order.

## B.) ER Diagram



### C.) Relational Schema:



## D.) Data Set Information:

Climbing route data for our project comes from <https://www.mountainproject.com/> (MP), which serves as a sort of online guidebook for over 300,000 climbing routes across the world.

Data can be exported from this website in csv format. The API is no longer supported, meaning data can only be pulled using the “Route Finder” feature. Here is an example of climbing routes at the [Red River Gorge](#).

Climbing route data was pulled for the following areas:

- Red Rocks, Nevada
- Shawangunks, New York
- Red River Gorge, Kentucky
- New River Gorge, West Virginia
- Rumney, New Hampshire
- Squamish, British Canada
- Yosemite, California
- Zion, Utah

The database contains 3,561 climbing routes, generally encompassing the most well-known routes in North America. This data is formatted to attributes such as the name, difficulty rating, star rating and URL. These routes exist in our database as a Routes schema.

The “ticklists” contain real data of logs of successful rock climbs by Vaidas and his most frequent climbing partners. These ticklists exist in our database in the Ticks schema.

PopulateDB.py processes csv data downloaded from Mountain Project, preprocessing and populating the Routes and Ticks schemas in the database. The difficulty of climbing routes is reported in MP in [Yosemite Decimal System](#), a ranking system that uses a combination of letter characters, numbers, as well as (+) and (-) chars to describe difficulty. Difficulty ratings were therefore converted to an integer scale so that they could be compared and filtered properly in the database (e.g. “5.11a” = 17, “5.10+” = 10)

The remaining data was created manually. It is factually accurate, but not available on Mountain Project. These schemas include:

- Climbing equipment required on certain routes
- Common rock types in regions of North America
- Rock climbing equipment information
- Climbing regions

## E.) Queries:

### Query 1

SELECT R.RouteName, R.Difficulty_Rating FROM Routes R WHERE Difficulty < 17 LIMIT 100			
	RouteName	Difficulty_Rating	
> 1	Big Bad Wolf	5.9	
> 2	Unimpeachable Groping	5.10b	
> 3	Flameblower	5.10d	
> 4	Divine Comedy	5.10a	
> 5	Yellow Brick Road	5.10b	
> 6	Haunted Hooks	5.10c	
> 7	Prince of Darkness	5.10c	
> 8	Cocopuss	5.10-	
> 9	Roto Hammer	5.10c	
> 10	Conquistador	5.10d	
> 11	Ultraman	5.8+	
> 12	The Heavy Hitter	5.10c/d	
> 13	Manifest Destiny	5.9+	
> 14	Nightmare on Crude Street	5.10d	
> 15	A Fraction of the Action	5.10a	
> 16	Side Effects	5.10d	
> 17	Idiot Parade (aka Need to Rest)	5.10c	
> 18	Sea of Troubles	5.9	
> 19	Mongol Hoarde	5.10a	

### Query 2

```

SELECT R.AVG_STARS, R.MP_URL FROM Routes AS R
    INNER JOIN Equipment_used AS E on R.RouteName = E.RouteName
    WHERE E.ProductName = "Climbing Helmet"

```

A screenshot of a database query results interface. The query has been executed and shows one result row. The columns are labeled 'AVG\_STARS' and 'MP\_URL'. The value for 'AVG\_STARS' is 3.5, and the value for 'MP\_URL' is <https://www.mountainproject.com>. The interface includes a search bar, various export and filter options, and a note indicating the cost was 15ms.

AVG_STARS	MP_URL
3.5	<a href="https://www.mountainproject.com">https://www.mountainproject.com</a>

### Query 3

```

SELECT * FROM Routes AS R
    LEFT JOIN "Common_geologies" AS C on R.Region = C.Region
    LEFT JOIN Regions AS RE on R.Region = RE.Region
    WHERE C.MainGeology = "Granite" AND RE.Continent = "North America"
    ORDER BY AVG_STARS DESC
    LIMIT 3

```

A screenshot of a database query results interface showing three rows of data. The columns are labeled 'RoutId', 'RouteName', 'Location', 'Region', 'MP\_URL', 'img\_URL', 'AVG\_STARS', 'RouteType', 'Difficulty\_Rating', and 'Difficulty'. The rows are as follows:

2297	*CLOSED FOR SAF	Western Royal Ar	California	<a href="https://www.mountainproject.com">https://www.mountainproject.com</a>	<a href="https://mountainproject.com">https://mountainproject.com</a>	4	Trad	5.10-	10
1770	40 Knobs to Freed	West Face > DAF	California	<a href="https://www.mountainproject.com">https://www.mountainproject.com</a>	<a href="https://mountainproject.com">https://mountainproject.com</a>	4	Trad	5.10b/c	13
1833	Acapulco Gold	Drug Dome > Tuc	California	<a href="https://www.mountainproject.com">https://www.mountainproject.com</a>	<a href="https://cdn.climbing.com">https://cdn.climbing.com</a>	4	Trad	5.12c	30

### Query 4

```

SELECT T.ClimberName
FROM "Ticks" T JOIN Routes R ON R.RouteName = T.RouteName
ORDER BY Difficulty desc LIMIT 1

```

A screenshot of a database query results interface showing one row of data. The column is labeled 'ClimberName' and the value is Aaron Sherman. The interface includes a search bar, various export and filter options, and a note indicating the cost was 12ms.

ClimberName
Aaron Sherman

### Query 5

```

SELECT *
FROM "Routes" R JOIN "Common_geologies" G ON G."Region" = R."Region"
WHERE G."MainGeology" LIKE "%Sandstone"
ORDER BY Location desc LIMIT 5

```

Search results    1    Export    Cost: 11ms

< 1 2 3 4 ... 303 > Total 1515

	RoutId	RouteName	Location	Region	MP_URL	img_URL	Avg_Stars	Route
> 1	3356	Juj Monster	north fork temp >	Utah	https://www.mountain...	https://mountain...	4	Trad
> 2	3409	Solstice of Change	north fork temp >	Utah	https://www.mountain...	https://mountain...	3	Trad
> 3	3537	Extra Chromosome	[Redacted] > Bea	West Virginia	https://www.mountain...	https://cdn.climb...	3	Sport
> 4	3543	McCrayfish and Ch	[Redacted] > Bea	West Virginia	https://www.mountain...	https://cdn.climb...	3	Sport
> 5	525	Fisted Hueco	Your Wall > Ash C	Nevada	https://www.mountain...	https://cdn.climb...	2.3	Sport

## Query 6

```

SELECT MP_URL, RouteName, Difficulty_Rating, Region, MAX("AVG_STARS") AS HighestRating
FROM Routes WHERE "Difficulty_Rating" LIKE '5.10a%'
GROUP BY Region LIMIT 100

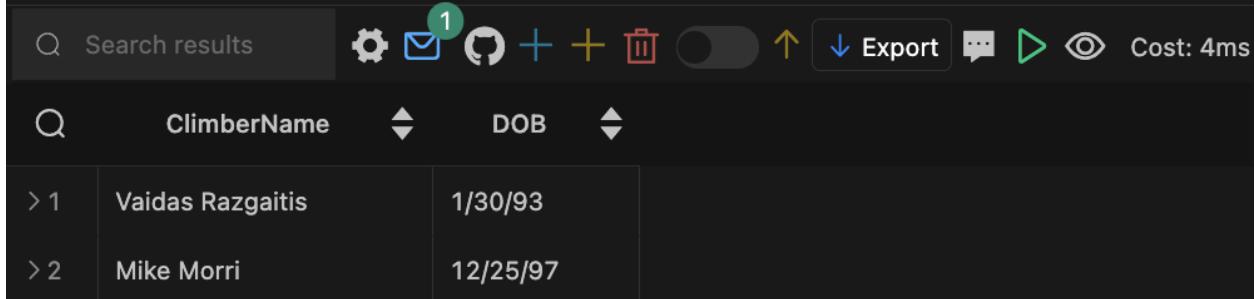
```

Search results    1    Export    Cost: 2ms < 1 > Total 7

	MP_URL	RouteName	Difficulty_Rating	*Region	HighestRating
	VARCHAR(100)	VARCHAR(70)	VARCHAR(10)	VARCHAR(50)	
> 1	https://www.mountainproject.com/route/takin-a-ride	Takin' A Ride	5.10a	California	4
> 2	https://www.mountainproject.com/route/the-squamish-squisher	The Squamish Squisher	5.10a	International	4
> 3	https://www.mountainproject.com/route/e-gbg	EGBG	5.10a	Kentucky	3.6
> 4	https://www.mountainproject.com/route/sendimental	Sendimental	5.10a/b	Nevada	3.4
> 5	https://www.mountainproject.com/route/lonesome-dove	Lonesome Dove	5.10a	New Hampshire	3.6
> 6	https://www.mountainproject.com/route/teeny-face	Teeny Face	5.10a	New York	3.6
> 7	https://www.mountainproject.com/route/going-under	Going Under	5.10a	Utah	4

## Query 7

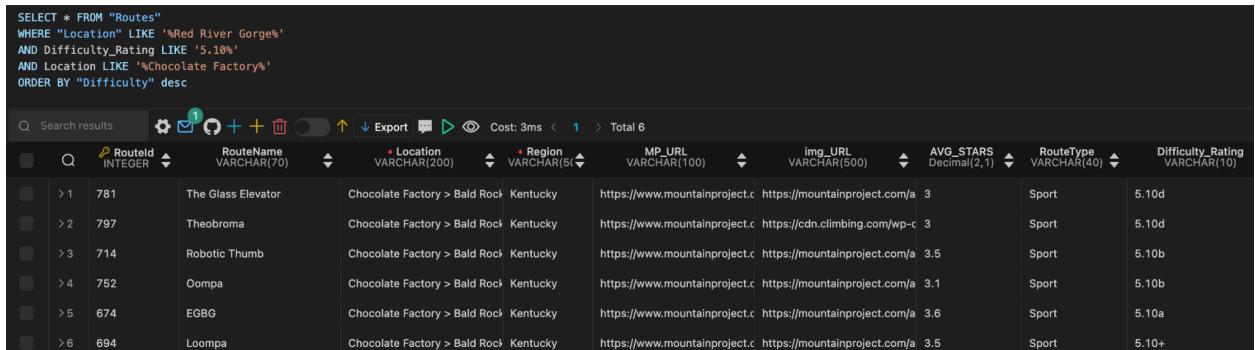
```
SELECT DISTINCT T.ClimberName, C."DOB" FROM "Ticks" T
    JOIN Routes R ON T."RouteName"=R."RouteName"
    JOIN Climbers C ON C."ClimberName"=T."ClimberName"
    WHERE Location LIKE '%Red River Gorge%'
        AND T."ClimbDate" >= DATE('now', '-2 years')
    ORDER BY "DOB" ASC LIMIT 100
```



The screenshot shows a database interface with a search bar, various filter and export options, and a cost indicator of 4ms. The results table has columns for ClimberName and DOB. Two rows are visible:

	ClimberName	DOB
> 1	Vaidas Razgaitis	1/30/93
> 2	Mike Morri	12/25/97

## Query 8



The screenshot shows a database interface with a search bar, various filter and export options, and a cost indicator of 3ms. The results table has columns for RouteId, RouteName, Location, Region, MP\_URL, img\_URL, AVG\_STARS, RouteType, and Difficulty\_Rating. Six rows are visible:

	RouteId	RouteName	Location	Region	MP_URL	img_URL	AVG_STARS	RouteType	Difficulty_Rating
> 1	781	The Glass Elevator	Chocolate Factory > Bald Rock	Kentucky	<a href="https://www.mountainproject.com/route/781/the-glass-elevator">https://www.mountainproject.com/route/781/the-glass-elevator</a>	<a href="https://mountainproject.com/a">https://mountainproject.com/a</a>	3	Sport	5.10d
> 2	797	Theobroma	Chocolate Factory > Bald Rock	Kentucky	<a href="https://www.mountainproject.com/route/797/theobroma">https://www.mountainproject.com/route/797/theobroma</a>	<a href="https://cdn.climbing.com/wp-content/themes/climbing/images/routes/797/theobroma.jpg">https://cdn.climbing.com/wp-content/themes/climbing/images/routes/797/theobroma.jpg</a>	3	Sport	5.10d
> 3	714	Robotic Thumb	Chocolate Factory > Bald Rock	Kentucky	<a href="https://www.mountainproject.com/route/714/robotic-thumb">https://www.mountainproject.com/route/714/robotic-thumb</a>	<a href="https://mountainproject.com/a">https://mountainproject.com/a</a>	3.5	Sport	5.10b
> 4	752	Oompa	Chocolate Factory > Bald Rock	Kentucky	<a href="https://www.mountainproject.com/route/752/oompa">https://www.mountainproject.com/route/752/oompa</a>	<a href="https://mountainproject.com/a">https://mountainproject.com/a</a>	3.1	Sport	5.10b
> 5	674	EGBG	Chocolate Factory > Bald Rock	Kentucky	<a href="https://www.mountainproject.com/route/674/ergb">https://www.mountainproject.com/route/674/ergb</a>	<a href="https://mountainproject.com/a">https://mountainproject.com/a</a>	3.6	Sport	5.10a
> 6	694	Loompa	Chocolate Factory > Bald Rock	Kentucky	<a href="https://www.mountainproject.com/route/694/loompa">https://www.mountainproject.com/route/694/loompa</a>	<a href="https://mountainproject.com/a">https://mountainproject.com/a</a>	3.5	Sport	5.10+