Project 1: Crunchbase Website

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1 Section 1

Our Project involves making a website which will help one to keep track of all the startups emerging every day. Since the startup world is flourishing and there are hundreds of new companies being founded each day and venture capital has become a substantial asset class for yearly investments. The website helps us to fetch the relevant details of all the startups, investment firms/VCs and people that are associated with these.

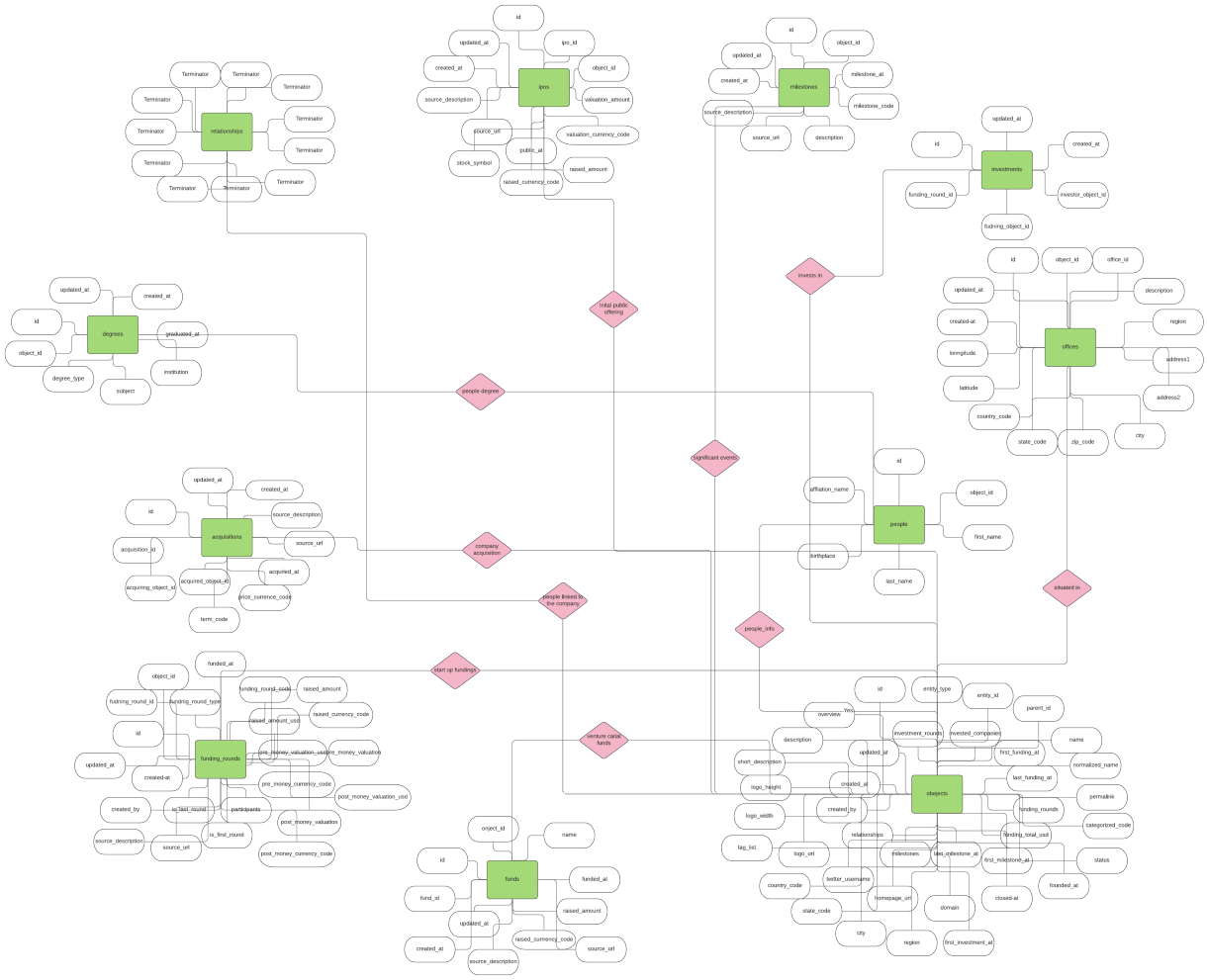

Figure 1: Entity Relation diagram of Entire Database

Table 1: List of Entities and Attributes

Entities	Attributes
acquisitions	id, acquisition_id, acquiring_object_id, acquired_object_id, term_code, price_currency_code, acquired_at,source_url, source_description, created_at, updated_at
degrees	id, object_id, degree_type, subject, institution, graduated_at, created_at, updated_at
funding_rounds	id, funding_round_id, object_id, funded_at, funding_round_type, funding_round_code, raised_amount_usd, raised_amount, raised_currency_code, pre_money_valuation_usd, pre_money_valuation, pre_money_currency_code, post_money_valuation_usd, post_money_valuation, post_money_currency_code, participants, is_first_round, is_last_round, source_url, source_description, created_by, created_at, updated_at
funds	id , fund_id, object_id, name, funded_at, raised_amount, raised_currency_code, source_url, source_description, created_at, updated_at
investments	id, funding_round_id, funded_object_id, investor_object_id, created_at, updated_at
ipos	id, ipo_id, object_id, valuation_amount, valuation_currency_code, raised_amount, raised_currency_code, public_at, stock_symbol, source_url, source_description, created_at, updated_at
milestones	id, object_id, milestone_at, milestone_code, description, source_url, source_description, created_at, updated_at
objects	id, entity_type, entity_id, parent_id, name, normalized_name, permalink, category_code, status, founded_at, closed_at, domain, homepage_url, twitter_username, logo_url, logo_width, logo_height, short_description, description, overview, tag_list, country_code, state_code, city, region, first_investment_at, last_investment_at, investment_rounds, invested_companies, first_funding_at, last_funding_at, funding_rounds, funding_total_usd, first_milestone_at, last_milestone_at, milestones, relationships, created_by, created_at, updated_at
offices	id, object_id, office_id, description, region, address1, address2, city, zip_code, state_code, country_code, latitude, longitude, created_at, updated_at
people	id, object_id, first_name, last_name, birthplace, affiliation_name
relationships	id, relationship_id, person_object_id, relationship_object_id, start_at, end_at, is_past, sequence, title, created_at, updated_at
userdb	username, password

2 Section 2

One can easily find data about the startups, investment firms, funds granted to the startups etc. but they are usually scattered and we went through different such sources and picked the one which had all the relevant details. Our source is:

- `https://www.kaggle.com/justinas/startup-investments` containing acquisition, degrees, funding_rounds, funds, investments, ipos, milestones, objects, offices, people tables.

The data is available ready-made on the website. We did not perform any cleanup for the source.

Table 2: Data Statistics

Table	**No. of tuples**	Time to Load	Raw dataset size	**dataset size after cleanup**
acquisitions	9562	324ms	2.00 MB	2.00 MB
degrees	109610	3s 754ms	11.4 MB	11.4 MB
funding_rounds	52928	1s 771ms	12.5 MB	12.5 MB
funds	1564	180ms	348 KB	348 KB
investments	80902	1s 356ms	4.73 MB	4.73 MB
ipos	1259	147ms	140KB	140 KB
milestones	39456	1s 92ms	9.32 MB	9.32 MB
objects	462651	17s 396ms	271 MB	271 MB
offices	112718	898ms	10.7 MB	10.7 MB
people	226709	1s 188ms	9.69 MB	9.69 MB
relationships	402878	5s 627ms	39.3 MB	39.3 MB
userdb	4	42.312ms	(dynamic table)	(dynamic table)

3 Section 3

3.1 User's View of the system

1. Home Page

   The user will find a bunch of rows giving us the option for choosing a type of query which on clicking, the user will get forward to a page and and then can enter the query in the form provided. Also the user can revert back to the home page after clicking the home icon on each of the forwarded site.

   (a) Single Input Query

   The page contains a form which requires the user to fill Entity name, select the particular Entity, a Query Type, sort by option to get the result in sorted order according to the user and also the number of entries to display in the result.

   (b) Double Input Query

   The page requires the user to fill two entities, the entity relationship , query type, sorting option and the number of entries that need to be displayed in the result.

   (c) Miscellaneous

   This page contains a bunch of queries that are default and one can get the relevant information such as cities having most number of offices, companies with most acquisitions etc. Apart from this the user can also select the number of tuples to be displayed in the result.

2. Admin page

   This page contains option to insert, update or delete entries from the tables. For this, one can sign in as an existing admin or a new admin can signup and then choose to perform the above mentioned operations.

   (a) Insert

   This page forwards the admin to a page to chose entity and query type and then forwards to a page where the admin is required to mention the detail that is to be inserted and then click on the submit button

   (b) Update

   Here the admin can update a particular entity and a query type.

   (c) Delete

   Here the admin can remove a particular entity and a query type.

3.2 List of Queries Used

1. Query type 1

   (a) Query type 1.1

      i. all the funding's received by the company given input from the user
      ii. all the acquisitions made by the company given input from the user
      iii. the current employees working in the company given input from the user.
      iv. list of all the employees who worked or still working in the company give input from the user.
      v. list of all the milestones of the company given input from the user.
      vi. list of all offices of the company given input from the user.
      vii. list of all the products
      viii. IPO of the company

   (b) Query type 1.2

      i. list of all investments on all companies done by the investor given as an input by the user
      ii. list of all companies that got investment from the investor given as an input by the user

iii. the fund available by the investor given as an input by the user

(c) Query type 1.3

i. list of all the companies, investment firms etc. worked by the person given as input by the user.

ii. list of all the personal details of the person given as input by the user.

(d) Query type 1.4

i. select all the creator companies of the product specified by the user.

(e) Query type 1.5

i. list of all the alumni working in industry and passed out from the institution mentioned by the user.

(f) Query type 1.6

i. list of all offices located in that city given as input by the user.

2. Query type 2

(a) Query type 2.1

i. list of all transactions between the company and the investor both given as input by the user.

(b) Query type 2.2

i. list of all positions held by the person in the company both given as input by the user.

3. Query type 3

(a) Query type 3.1

i. order the companies according to the most number of acquisitions made.

ii. order the companies according to the most funding received.

iii. order the companies with most products launched products.

iv. order the companies according to most number of people working in it.

v. order the companies according to the most number of offices it has.

vi. order the cities according to the most number of offices it has.

vii. order the institutions which has most number of alumnus working in companies.

viii. order the investors according to the most number of funds available with them.

ix. order the peoples according to the most number of companies they have worked with.

x. order the investors having most number of companies in portfolio.

4. Query type 4

(a) Query type 4.1

i. inserting new company name and company website in objects table.

ii. inserting new company name, funding date, funding round, funding round code, amount raised (in USD) in funding_rounds table.

iii. inserting acquiring company name, acquired company name, deal amount, currency, news source in acquisitions table.

iv. inserting company name, milestone description, milestone Date, news source in milestones table.

v. inserting company name, address, region, city, state, zip code in offices table.

vi. inserting company name, valuation amount, raised amount, currency, public at, stock symbol, news source in ipos table.

(b) Query type 4.2

i. insert investor name, investor website in objects table.

ii. insert investment firm, invested in company, funding round code in investments table.

iii. insert investment firm, fund name fund amount currency, news source in funds table.

(c) Query type 4.3

i. insert person name, birthplace, current affiliation, degree, subjects, institution accordingly in objects, people and degrees table.

ii. insert person name, company name, role in relationships table.

5. Query type 5

(a) Query type 5.1

i. update company name in objects table.

(b) Query type 5.2

i. update the investor name in objects table.

(c) Query type 5.3

i. update the person name in objects and people table.

(d) Query type 5.4

i. update the product type company's name in objects table.

ii. update the product company's parent company name in objects table

6. Query type 6

(a) Query type 6.1

i. delete all records of the company with company name provided by the user from the database.

(b) Query type 6.2

i. delete all records of the investor with investor name given as input by the user from the database.

(c) Query type 6.3

i. delete all records of the person with person name given as input by the user from the database

Table 3: Data Statistics of some queries

Query Number	Average running time
1.a.ii	108.440 ms
1.a.iv	86.124 ms
1.a.v	90.651 ms
1.b.i	105.353 ms
1.b.ii	80.607 ms
1.c.1	43.794 ms
1.c.ii	21.478 ms
2.a.i	106.417 ms
3.a.i	81.526 ms
3.a.ii	67.104 ms
3.a.v	79.309 ms

3.3 Special Functionalities:

1. Login and Signup required for Admin activities -
   (a) To update database, one has to login/signup through the admin page.
2. Views -
   (a) Views are formed for 'Miscellaneous' queries to fasten query time.

3.4 SQL Queries -

- 1.a.i

```
SELECT   o.name                  AS "Company",
     foo.funding_round_type AS "Funding Round",
     foo.raised_amount_usd  AS "Total Amount Raised (in USD)",
     foo.source_url         AS "News Source",
     foo.invest             AS "Investors",
     foo.funded_at          AS "Funding Date"
FROM     objects                 AS o,
         (
                SELECT f.*,
                       foo.invest
                FROM   funding_rounds AS f,
                       (
                                SELECT   funding_round_id,
                                         funded_object_id,
                                         Array_agg(name) AS invest
                                FROM     (
                                                SELECT i.funding_round_id,
                                                       i.funded_object_id,
                                                       o.name
                                                FROM   investments AS i,
                                                       objects     AS o
                                                WHERE  i.funded_object_id IN
                                                       (
                                                              SELECT id
                                                              FROM   objects
```

```
                                                                WHERE  name = %s
                                                                AND    entity_type = 'Company')
                                                  AND    i.investor_object_id = o.id) AS foo
                                GROUP BY funding_round_id,
                                         funded_object_id) AS foo
                WHERE  f.funding_round_id = foo.funding_round_id
                AND    f.object_id = foo.funded_object_id) AS foo
WHERE    o.id = foo.object_id
ORDER BY "Funding Date" DESC
LIMIT    %s;
```

- 1.a.ii

```
SELECT   objects1.name AS "Acquiring Company",
     objects2.name AS "Acquired Company", (
     CASE
              WHEN f.price_amount = 0.0 THEN 'N/A'
              ELSE cast(f.price_amount AS text)
     end)                  AS "Deal Amount",
     f.price_currency_code AS "Currency",
     f.acquired_at         AS "Deal Date",
     f.source_url          AS "News Source"
FROM     objects               AS objects1,
         objects               AS objects2,
         (
                SELECT acquiring_object_id,
                       acquired_object_id,
                       price_amount,
                       price_currency_code,
                       acquired_at,
                       source_url
                FROM   acquisitions
                WHERE  acquiring_object_id IN
                       (
                              SELECT id
                              FROM   objects
                              WHERE  name = 'Facebook'
                              AND    entity_type = 'Company')) AS f
WHERE    f.acquiring_object_id = objects1.id
AND      f.acquired_object_id = objects2.id
ORDER BY f.price_amount DESC
LIMIT    10
```

- 1.a.iii

```
SELECT   %s                                          AS "Company",
          concat(first_name, ' ', last_name) AS "Employee Name",
 table1.title                                AS "Role"
FROM     people
JOIN
         (
                         SELECT DISTINCT person_object_id,
                                         title
                         FROM            relationships AS rel
```

```
                        JOIN
                                (
                                       SELECT id
                                       FROM   objects
                                       WHERE  entity_type='Company'
                                       AND    name=%s) AS cid
                        ON              rel.relationship_object_id = cid.id
                        AND             rel.is_past = 0)AS table1
ON       table1.person_object_id = object_id
ORDER BY first_name,
         last_name
LIMIT    %s;
```

- 1.a.iv

```
SELECT   %s                                          AS "Company",
          concat(first_name, ' ', last_name) AS "Employee Name",
 table1.title                                AS "Role", (
 CASE
          WHEN table1.is_past = 0 THEN 'Current'
          ELSE 'Former'
 end) AS "Employment Status"
FROM     people
JOIN
         (
                        SELECT DISTINCT person_object_id,
                                        title,
                                        is_past
                        FROM            relationships AS rel
                        JOIN
                                        (
                                               SELECT id
                                               FROM   objects
                                               WHERE  entity_type='Company'
                                               AND    name=%s) AS cid
                        ON              rel.relationship_object_id = cid.id)AS table1
ON       table1.person_object_id = object_id
ORDER BY first_name,
         last_name
LIMIT    %s
```

- 1.a.v

```
SELECT   %s               AS "Company",
 mil.description  AS "Milestone",
 mil.milestone_at AS "Date",
 mil.source_url   AS "News Source"
FROM     milestones       AS mil
JOIN
         (
                SELECT id
                FROM   objects
```

```
                WHERE  entity_type='Company'
                AND    name=%s) AS cid
ON       cid.id=mil.object_id
ORDER BY mil.milestone_at DESC
LIMIT    %s;
```

- 1.a.vi

```
SELECT   %s           AS "Company",
 region       AS "Region",
 address1     AS "Address",
 city         AS "City",
 zip_code     AS "Zip Code",
 state_code   AS "State",
 country_code AS "Country"
FROM     offices
WHERE    object_id IN
         (
                SELECT id
                FROM   objects
                WHERE  name = %s
                AND    entity_type = 'Company')
ORDER BY city
LIMIT    %s
```

- 1.a.vii

```
SELECT   %s           AS "Compnay",
 name         AS "Product",
 status       AS "Status",
 domain       AS "Domain",
 homepage_url AS "Homepage URL"
FROM     objects
WHERE    parent_id IN
         (
                SELECT id
                FROM   objects
                WHERE  name = %s
                AND    entity_type = 'Company')
AND      entity_type = 'Product'
ORDER BY name
LIMIT    %s;
```

-
```
SELECT %s                      AS "Company",
valuation_amount        AS "Company Valuation after IPO",
raised_amount           AS "Amount Raised in IPO",
valuation_currecny_code AS "Currency",
public_at               AS "IPO Debut",
stock_symbol            AS "Stock Symbol",
source_url              AS "News Source"
FROM   ipos
```

```
WHERE  object_id IN
       (
              SELECT id
              FROM   objects
              WHERE  name = %s
              AND    entity_type = 'Company');
```

- 1.b.i

```
SELECT   %s                    AS "Investor",
 o.name                 AS "Invested in",
 foo.funding_round_type AS "Funding Round"
FROM     objects                AS o,
         (
                SELECT f.funding_round_id,
                       f.object_id,
                       f.funding_round_type
                FROM   funding_rounds AS f,
                       (
                              SELECT funding_round_id,
                                     funded_object_id
                              FROM   investments
                              WHERE  investor_object_id IN
                                     (
                                            SELECT id
                                            FROM   objects
                                            WHERE  name = %s
                                            AND    entity_type = 'FinancialOrg')) AS foo
                WHERE  f.funding_round_id = foo.funding_round_id
                AND    f.object_id = foo.funded_object_id) AS foo
WHERE    o.id = foo.object_id
ORDER BY "Invested in"
LIMIT    %s;
```

- 1.b.ii

```
SELECT   %s      AS investor,
 o.name  AS "Company Invested in"
FROM     objects AS o,
         (
                         SELECT DISTINCT funded_object_id
                         FROM            investments
                         WHERE           investor_object_id IN
                                         (
                                                SELECT id
                                                FROM   objects
                                                WHERE  name = %s
                                                AND    entity_type = 'FinancialOrg')) AS foo
WHERE    o.id = foo.funded_object_id
ORDER BY name ASC
LIMIT    %s;
```

- 1.b.iii

```
SELECT   %s   AS "Investment Firm",
 name AS "Fund Name", (
 CASE
          WHEN raised_amount = 0.0 THEN 'N/A'
          ELSE cast(raised_amount AS text)
 end)                 AS "Fund Amount",
 raised_currency_code AS "Currency",
 funded_at            AS "Fund Creation Date",
 source_url           AS "News Source"
FROM     funds
WHERE    object_id IN
         (
                SELECT id
                FROM   objects
                WHERE  name = %s
                AND    entity_type = 'FinancialOrg')
ORDER BY raised_amount
LIMIT    %s;
```

- 1.c.i

```
SELECT   %s      AS "Name",
 o.name  AS "Company",
 r.title AS "Role", (
 CASE
          WHEN r.is_past=0 THEN 'Current'
          ELSE 'Former'
 end)          AS "Employment Status"
FROM     relationships AS r,
         objects       AS o
WHERE    o.id = r.relationship_object_id
AND      r.person_object_id =
         (
                SELECT object_id
                FROM   people
                WHERE  first_name = split_part(%s, ' ', 1)
                AND    last_name = split_part(%s, ' ', 2))
ORDER BY name ASC
LIMIT    %s;
```

- 1.c.ii

```
SELECT     %s                AS "Name",
   f.birthplace      AS "Birthplace",
   f.affliation_name AS "Current Affiliations",
   d.degree_type     AS "Educational Degree",
   d.subject         AS "Subjects",
   d.institution     AS "Institution",
   d.graduated_at    AS "Graduated On"
FROM       degrees           AS d
```

```
RIGHT JOIN
          (
                 SELECT object_id,
                        birthplace,
                        affliation_name
                 FROM   people
                 WHERE  object_id IN
                        (
                               SELECT object_id
                               FROM   people
                               WHERE  first_name = split_part(%s, ' ', 1)
                               AND    last_name = split_part(%s, ' ', 2))) AS f
ON        d.object_id = f.object_id;
```

- 1.d.i

```
SELECT %s   AS "Product",
name AS "Creator Company"
FROM   objects
WHERE  entity_type = 'Company'
AND    id IN
       (
              SELECT parent_id
              FROM   objects
              WHERE  name =%s
              AND    entity_type = 'Product')
```

- 1.e.i

```
SELECT   %s                                            AS "Institution",
                concat(p.first_name, ' ', p.last_name) AS "Person Name"
FROM     people                                        AS p,
         (
                        SELECT DISTINCT object_id
                        FROM            degrees
                        WHERE           institution IS NOT NULL
                        AND             institution = %s) AS foo
WHERE    p.object_id = foo.object_id
ORDER BY "Person Name"
LIMIT    %s;
```

- 1.f.i

```
SELECT   o.city     AS "City",
         ob.name    AS "Company",
         o.address1 AS "Address",
         o.region   AS "Region",
         o.zip_code AS "Zip Code"
FROM     objects    AS ob,
         offices    AS o
WHERE    ob.id = o.object_id
```

```
AND      o.city = %s
ORDER BY name
LIMIT    %s;
```

- 2.a.i

```
SELECT   %s                   AS "Company",
         %s                   AS "Investor",
         f.funding_round_type AS "Funding Round",
         f.funded_at          AS "Funding Date"
FROM     funding_rounds       AS f,
         (
                SELECT funding_round_id,
                       funded_object_id,
                       investor_object_id
                FROM   investments
                WHERE  funded_object_id IN
                       (
                              SELECT id
                              FROM   objects
                              WHERE  name = %s
                              AND    entity_type = 'Company')
                AND    investor_object_id IN
                       (
                              SELECT id
                              FROM   objects
                              WHERE  name = %s
                              AND    entity_type = 'FinancialOrg')) AS foo
WHERE    f.object_id = foo.funded_object_id
AND      f.funding_round_id = foo.funding_round_id
ORDER BY funded_at ASC
LIMIT    %s;
```

- SELECT   %s   AS "Name",
         %s   AS "Company",
         r.title AS "Role", (
         CASE
                  WHEN r.is_past=0 THEN 'Current'
                  ELSE 'Former'
         end)   AS "Employment Status"
  FROM   relationships AS r,
         objects   AS o
  WHERE   o.id = r.relationship_object_id
  AND   r.person_object_id =
         (
                SELECT object_id
                FROM   people
                WHERE first_name = split_part(%s, ' ', 1)
                AND   last_name = split_part(%s, ' ', 2))
  AND   r.relationship_object_id IN
         (
                SELECT id

```
                FROM   objects
                WHERE  name = %s)
ORDER BY r.is_past
LIMIT    %s;
```

- 3.a.i

```
SELECT   o.name    AS "Company",
         foo.count AS "Number of Acquisitions"
FROM     objects   AS o,
         (
                  SELECT   acquiring_object_id,
                           Count(acquired_object_id)
                  FROM     acquisitions
                  GROUP BY acquiring_object_id) AS foo
WHERE    o.id = foo.acquiring_object_id
ORDER BY foo.count DESC
LIMIT    %s;
```

- 3.a.ii

```
SELECT   o.name  AS "Company",
         foo.sum AS "Total Funds Raised (in USD)"
FROM     objects AS o,
         (
                  SELECT   object_id,
                           Sum(raised_amount_usd)
                  FROM     funding_rounds
                  GROUP BY object_id) AS foo
WHERE    foo.object_id = o.id
ORDER BY foo.sum DESC
LIMIT    %s;
```

- 3.a.iii

```
SELECT   o.name    AS "Company",
         foo.count AS "Products Launched"
FROM     objects   AS o,
         (
                  SELECT   parent_id,
                           Count(id)
                  FROM     objects
                  WHERE    entity_type = 'Product'
                  GROUP BY parent_id) AS foo
WHERE    foo.parent_id = o.id
ORDER BY foo.count DESC
LIMIT    %s;
```

- 3.a.iv

```
SELECT   o.name    AS "Company",
         foo.count AS "Number of Current Employees"
FROM     objects   AS o,
         (
                  SELECT   relationship_object_id,
                           Count(person_object_id)
                  FROM     relationships
                  WHERE    is_past = 0
                  GROUP BY relationship_object_id) AS foo
WHERE    foo.relationship_object_id = o.id
ORDER BY foo.count DESC
LIMIT    %s;
```

- 3.a.v

```
SELECT   o.name    AS "Company",
         foo.count AS "Number of Offices"
FROM     objects   AS o,
         (
                  SELECT   object_id,
                           Count(office_id)
                  FROM     offices
                  GROUP BY object_id) AS foo
WHERE    foo.object_id = o.id
ORDER BY foo.count DESC
LIMIT    %s;
```

- 3.a.vi

```
SELECT   city     AS "City",
         Count(*) AS "Number of Offices in the City"
FROM     offices
WHERE    city IS NOT NULL
GROUP BY city
ORDER BY "Number of Offices in the City" DESC
LIMIT    %s;
```

- 3.a.vii

```
SELECT   institution AS "Institution",
         Count(*)    AS "Number of People Working in Startups"
FROM     degrees
WHERE    institution IS NOT NULL
GROUP BY institution
ORDER BY "Number of People Working in Startups" DESC
LIMIT    %s;
```

- 3.a.viii

```
SELECT   o.name  AS "Investment Firm",
         foo.sum AS "Total Funds Available (in USD)"
FROM     objects AS o,
         (
                  SELECT   object_id,
                           Sum(raised_amount)
                  FROM     funds
                  GROUP BY object_id) AS foo
WHERE    foo.object_id = o.id
ORDER BY foo.sum DESC
LIMIT    %s;
```

- 3.a.ix

```
SELECT   o.name    AS "Person Name",
         foo.count AS "Total Jobs Worked"
FROM     objects   AS o,
         (
                  SELECT   person_object_id,
                           Count(relationship_object_id)
                  FROM     relationships
                  GROUP BY person_object_id) AS foo
WHERE    foo.person_object_id = o.id
ORDER BY foo.count DESC
LIMIT    %s;
```

- 3.a.x

```
SELECT   o.name    AS "Investment Firm",
         foo.count AS "Total Companies in Portfolio"
FROM     objects   AS o,
         (
                  SELECT   investor_object_id,
                           Count(DISTINCT funded_object_id)
                  FROM     investments
                  GROUP BY investor_object_id) AS foo
WHERE    foo.investor_object_id = o.id
ORDER BY foo.count DESC
LIMIT    %s;
```

- 4.a.i

```
INSERT INTO objects
            (id,
             entity_type,
             entity_id,
             name,
             permalink,
             homepage_url)
VALUES      (%s,
             'Company',
```

```
              %s,
              %s,
              CONCAT('/company/', %s),
              %s);
```

- 4.a.ii

```
INSERT INTO funding_rounds
            (id,
             funding_round_id,
             object_id,
             funded_at,
             funding_round_type,
             raised_amount_usd)
VALUES      (%s,
             %s,
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Company'),
             %s,
             %s,
             %s);
```

- 4.a.iii

```
INSERT INTO acquisitions
            (id,
             acquisition_id,
             acquiring_object_id,
             acquired_object_id,
             price_amount,
             price_currency_code,
             source_url)
VALUES      (%s,
             %s,
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Company'),
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Company'),
             %s,
             %s,
             %s)
```

- 4.a.iv

```
INSERT INTO milestones
```

```
            (id,
             object_id,
             milestone_at,
             description,
             source_url)
VALUES      (%s,
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Company'),
             %s,
             %s,
             %s)
```

- 4.a.v

```
INSERT INTO offices
            (id,
             object_id,
             office_id,
             region,
             address1,
             city,
             zip_code,
             state_code)
VALUES      (%s,
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Company'),
             %s,
             %s,
             %s,
             %s,
             %s,
             %s)
```

- 4.a.vi

```
INSERT INTO ipos
            (id,
             ipo_id,
             object_id,
             valuation_amount,
             valuation_currecny_code,
             raised_amount,
             raised_currency_code,
             public_at,
             stock_symbol,
             source_url)
VALUES      (%s,
             %s,
```

```
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Company'),
             %s,
             %s,
             %s,
             %s,
             %s,
             %s,
             %s);
```

- 4.b.i

```
INSERT INTO objects
            (id,
             entity_type,
             entity_id,
             name,
             permalink,
             homepage_url)
VALUES      (%s,
             'FinancialOrg',
             %s,
             %s,
             CONCAT('/financial-organization/', %s),
             %s);
```

- 4.b.ii

```
INSERT INTO investments
            (id,
             funding_round_id,
             funded_object_id,
             investor_object_id)
VALUES      (%s,
             %s,
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Company'),
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'FinancialOrg'));
```

- 4.b.iii

```
INSERT INTO funds
            (id,
             fund_id,
```

```
            object_id,
            name,
            raised_amount,
            raised_currency_code,
            source_url)
VALUES      (%s,
            %s,
            (SELECT id
             FROM   objects
             WHERE  name = %s
                    AND entity_type = 'FinancialOrg'),
            %s,
            %s,
            %s,
            %s)
```

- 4.c.i

```
INSERT INTO objects
            (id,
             entity_type,
             entity_id,
             name,
             permalink)
VALUES      (%s,
             'Person',
             %s,
             %s,
             CONCAT('/person/', %s));

INSERT INTO people
            (id,
             object_id,
             first_name,
             last_name,
             birthplace,
             affliation_name)
VALUES      (%s,
             %s,
             Split_part(%s, ' ', 1),
             Split_part(%s, ' ', 2),
             %s,
             %s);

INSERT INTO degrees
            (id,
             object_id,
             degree_type,
             subject,
             institution)
VALUES      (%s,
             %s,
             %s,
```

```
            %s,
            %s);
```

- 4.c.ii

```
INSERT INTO relationships
            (id,
             relationship_id,
             person_object_id,
             relationship_object_id,
             is_past,
             title)
VALUES      (%s,
             %s,
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Person'),
             (SELECT id
              FROM   objects
              WHERE  name = %s
                     AND entity_type = 'Company'),
             0,
             %s);
```

- 5.a.i

```
UPDATE objects
SET    name = %s
WHERE  name = %s
       AND entity_type = 'Company';
```

- 5.b.i

```
UPDATE objects
SET    name = %s
WHERE  name = %s
       AND entity_type = 'FinancialOrg';
```

- 5.c.i

```
UPDATE objects
SET    name = %s
WHERE  name = %s
       AND entity_type = 'Person';

UPDATE people
SET    first_name = Split_part(%s, ' ', 1),
       last_name = Split_part(%s, ' ', 2)
WHERE  first_name = Split_part(%s, ' ', 1)
       AND last_name = Split_part(%s, ' ', 2);
```

- 5.d.i

```
UPDATE objects
SET    name = %s
WHERE  name = %s
       AND entity_type = 'Product';
```

- 5.d.ii

```
UPDATE objects
SET    parent_id = (SELECT id
                    FROM   objects
                    WHERE  name = %s
                           AND entity_type = 'Company')
WHERE  name = %s
       AND parent_id = (SELECT id
                        FROM   objects
                        WHERE  name = %s
                               AND entity_type = 'Company');
```

- 6.a.i

```
DELETE FROM acquisitions
WHERE  acquiring_object_id IN (SELECT id
                               FROM   objects
                               WHERE  name = %s
                                      AND entity_type = 'Company')
        OR acquired_object_id IN (SELECT id
                                  FROM   objects
                                  WHERE  name = %s
                                         AND entity_type = 'Company');

DELETE FROM funding_rounds
WHERE  object_id IN (SELECT id
                     FROM   objects
                     WHERE  name = %s
                            AND entity_type = 'Company');

DELETE FROM investments
WHERE  funded_object_id IN (SELECT id
                            FROM   objects
                            WHERE  name = %s
                                   AND entity_type = 'Company');

DELETE FROM ipos
WHERE  object_id IN (SELECT id
                     FROM   objects
                     WHERE  name = %s
                            AND entity_type = 'Company');

DELETE FROM milestones
WHERE  object_id IN (SELECT id
```

```
                        FROM   objects
                        WHERE  name = %s
                               AND entity_type = 'Company');

  DELETE FROM offices
  WHERE  object_id IN (SELECT id
                        FROM   objects
                        WHERE  name = %s
                               AND entity_type = 'Company');

  DELETE FROM relationships
  WHERE  person_object_id IN (SELECT id
                              FROM   objects
                              WHERE  name = %s
                                     AND entity_type = 'Company');

  DELETE FROM people
  WHERE  affliation_name = %s

  DELETE FROM objects
  WHERE  name = %s
         AND entity_type = 'Company';
```

- 6.b.i

```
  DELETE FROM funds
  WHERE  object_id IN (SELECT id
                        FROM   objects
                        WHERE  name = %s
                               AND entity_type = 'FinancialOrg')

  DELETE FROM investments
  WHERE  investor_object_id IN (SELECT id
                                FROM   objects
                                WHERE  name = %s
                                       AND entity_type = 'FinancialOrg')

  DELETE FROM objects
  WHERE  name = %s
         AND entity_type = 'FinancialOrg'
```

- 6.c.i

```
  DELETE FROM degrees
  WHERE  object_id IN (SELECT id
                        FROM   objects
                        WHERE  name = %s
                               AND entity_type = 'Person')

  DELETE FROM people
  WHERE  object_id IN (SELECT id
                        FROM   objects
```

```
                    WHERE  name = %s
                           AND entity_type = 'Person')

DELETE FROM relationships
WHERE  person_object_id IN (SELECT id
                            FROM   objects
                            WHERE  name = %s
                                   AND entity_type = 'Person')

DELETE FROM objects
WHERE  name = %s
       AND entity_type = 'Person'
```