University of British Columbia, Vancouver
Department of Computer Science

CPSC 304 Project Cover Page

Milestone #: 2

Date: 2/5/21

Group Number: 3

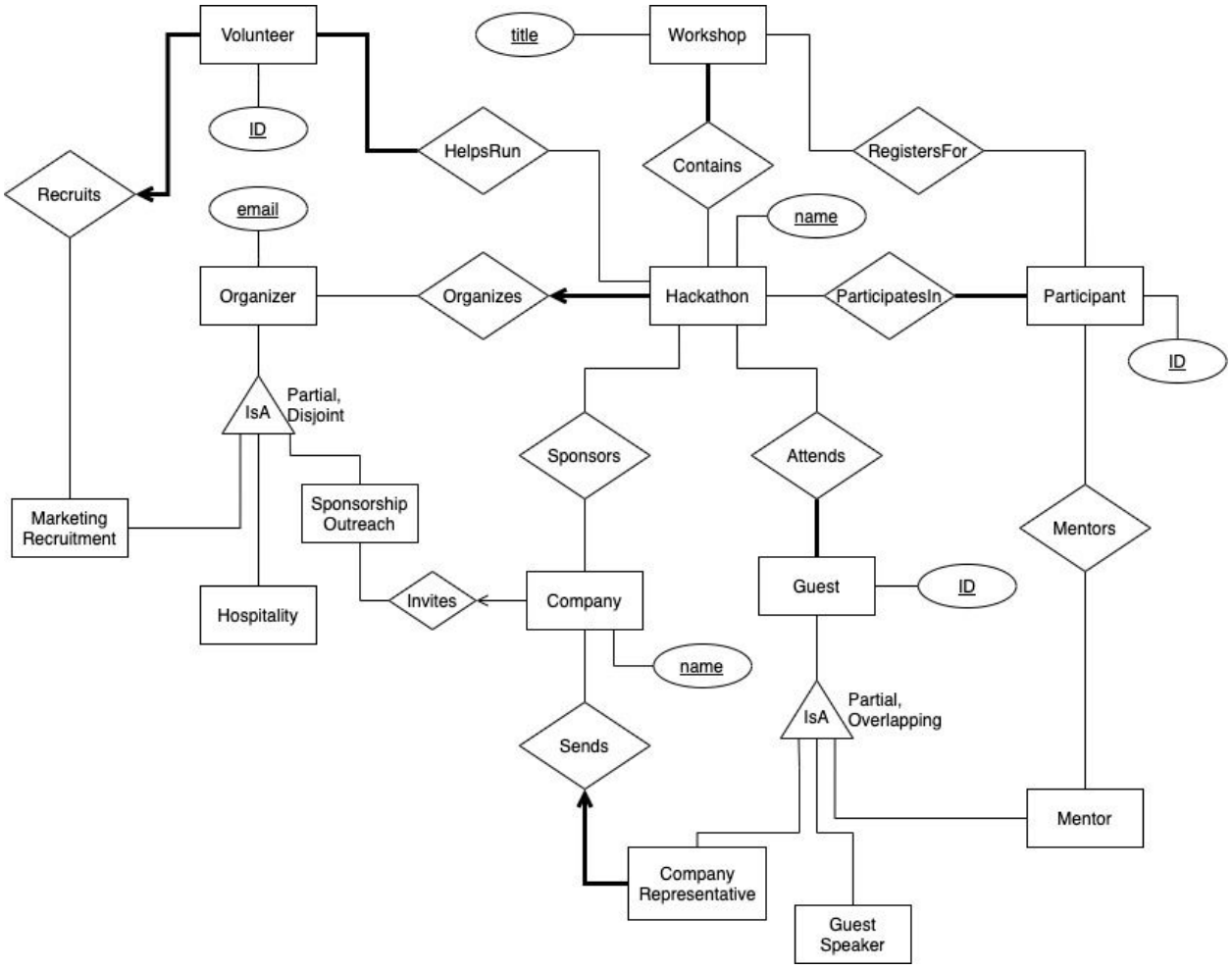
Name	Student Number	CS Alias (Userid)	Preferred E-mail Address
Cici (Cen Ran) Bai	89606362	z2b3b	cicibai7@gmail.com
Brooke Dai	82496506	n8f2b	brookeydai@gmail.com
Amy (Xiang) Yao	27239619	h7a1b	amy.yao22@gmail.com

By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

1. *(see cover page above)*

2. ***ER Diagram***



Modifications:

- We bolded the line between Volunteer and MarketingRecruitment because all volunteers participate in the Recruits relationship; that is, all volunteers are recruited by the marketing/recruitment department.
- We had a few relationships that are multiple words long/contains non-letter characters, so we modified them to be one word (e.g. Participates in → ParticipatesIn).
- We changed the Organizer ISA relationship from Total Disjoint to Partial Disjoint, because it made more sense for general organizers to exist.
- We added a "socialMedia" attribute to the MarketingRecruitment entity, representing what type of platform each organizer that is part of MarketingRecruitment should be

responsible for. This modification is to ensure that each subclass of the Organizer has its own attribute.

- We renamed the Caterer entity to Hospitality, and we made “caterer” an attribute of Hospitality, because a caterer is usually not an organizer (but rather someone a Hospitality Organizer hires). We also added “budget” as an attribute of Hospitality to ensure that each subclass of the Organizer has its own attribute.
- We added an “industry” attribute to the SponsorshipOutreach entity, representing what type of industry each organizer that is part of SponsorshipOutreach is responsible for contacting. This modification is to ensure that each subgroup of the Organizer has its own attribute.
- We added “bestLanguage” and “areaOfExpertise” attributes to the Mentor entity, to ensure that each subgroup of the Guest entity has its own attribute.
- We unbolded the line from SponsorshipOutreach to Invites, because not everyone in SponsorshipOutreach has to invite a company.

Below is the full list of all of our entities’ attributes (primary key underlined):

1. **Volunteer**
    - ID
    - Name
    - Role
    - Email
    - Phone Number

2. **Workshop**
    - Title
    - Time
    - Room Number

3. **Organizer**
    - Email
    - Name
    - Phone Number
4. **Hackathon**
    - Name
    - Date
    - Time
    - Location

5. **Participant**
    - ID
    - Name
    - Email
    - School
    - Location

6. **Company**
    - Name
    - Phone Number
    - Email

7. **Guest**
    - ID
    - Name

8. **MarketingRecruitment**
    - Email
    - SocialMedia

9. **Hospitality**
    - Email
    - Caterer
    - Budget

10. **SponsorshipOutreach**
    - Email
    - Industry

11. **CompanyRepresentative**
    - ID

12. **GuestSpeaker**
    - ID
    - Topic

13. **Mentor**
    - ID
    - bestLanguage
    - areaOfExpertise

3. Schema

Hackathon (name: string, **Oemail: string**, date: date, time: time, location: string)
- Constraints: Oemail is not null

Volunteer (ID: integer, **MRemail: string**, name: string, role: string, email: string, phoneNum: string)
- Constraints: MRemail is not null
- Candidate keys:
    - email
    - phoneNum

Workshop (title: string, time: time, roomNum: string)

Organizer (email: string, name: string, phoneNum: string)
- Candidate keys:
    - phoneNum

Participant (ID: integer, name: string, email: string, school: string, location: string)
- Constraints: school is unique
- Candidate keys:
    - email

Company (name: string, **SOemail: string**, phoneNum: string, email: string)
- Candidate keys:
    - phoneNum
    - email

Guest (ID: integer, name: string)

MarketingRecruitment (**email: string**, socialMediaPlatform: string)

Hospitality (**email: string**, caterer: string, budget: integer)
- Constraints: caterer is unique

SponsorshipOutreach (**email: string**, industry: string)

Mentor (**ID: integer**, bestLanguage: string, areaOfExpertise: string)

GuestSpeaker (**ID: integer**, topic: string)

CompanyRepresentative (**ID: integer**, **Cname: string**)

- Constraints: Cname is not null

HelpsRun (**vID: integer**, **hName: string**)

Contains (**hName: string**, **wTitle: string**)

RegistersFor (**pID: integer**, **wTitle: string**)

ParticipatesIn (**pID: integer**, **hName: string**)

Sponsors (**hName: string**, **cName: string**)

Attends (**gID: integer**, **hName: string**)

Mentors (**mID: integer**, **pID: integer**)

4. ***Functional Dependencies***

***FDs other than those identified by a primary key or candidate key are bolded**
***FDs identified by candidate keys are italicized*

Hackathon (<u>name: string</u>, **Oemail: string**, date: date, time: time, location: string)

- Name → Oemail
- Name → date
- Name → time
- Name → location

Volunteer (<u>ID: integer</u>, **MRemail: string**, name: string, role: string, email: string, phoneNum: string)

- ID → MRemail
- ID → name
- ID → role
- ID → email
- ID → phoneNum
- *Email → ID*
- *Email → MRemail*
- *Email → name*
- *Email → role*
- *Email → phoneNum*
- *phoneNum → ID*
- *phoneNum → MRemail*
- *phoneNum → name*
- *phoneNum → role*
- *phoneNum → email*

Workshop (<u>title: string</u>, time: time, roomNum: string)

- title → time
- title → roomNum

Organizer (<u>email: string</u>, name: string, phoneNum: string)

- email → name
- email → phoneNum
- *phoneNum → email*
- *phoneNum → name*

MarketingRecruitment (**email: string**, socialMediaPlatform: string)

- email → socialMediaPlatform

Hospitality (**email: string**, caterer: string, budget: integer)

- email → caterer
- **caterer → budget**

SponsorshipOutreach (**email: string**, industry: string)

- email → industry

Participant (ID: integer, name: string, email: string, school: string, location: string)

- ID → name
- ID → email
- ID → school
- *email → ID*
- *email → name*
- *email → school*
- **school → location**

Company (name: string, **SOemail: string**, phoneNum: string, email: string)

- name → SOemail
- name → phoneNum
- name → email
- *phoneNum → name*
- *phoneNum → SOemail*
- *phoneNum → email*
- *email → name*
- *email → SOemail*
- *email → phoneNum*

Guest (ID: integer, name: string)

- ID → name

Mentor (**ID: integer**, bestLanguage: string, areaOfExpertise: string)

- ID → bestLanguage
- ID → areaOfExpertise

GuestSpeaker (**ID: integer**, topic: string)

- ID → topic

CompanyRepresentative (**ID: integer**, **Cname: string**)

- ID → Cname

5. ***Normalization***

Hackathon (name: string, **Oemail: string**, date: date, time: time, location: string)

Volunteer (ID: integer, **MRemail: string**, name: string, role: string, email: string, phoneNum: string)

- Candidate keys:
  - email
  - phoneNum

Workshop (title: string, time: time, roomNum: string)

Organizer (email: string, name: string, phoneNum: string)

- Candidate keys:
  - phoneNum

Participant (ID: integer, name: string, email: string, **school: string**)

- Constraints: school is unique
- Candidate keys:
  - Email

School (name: string, location: string)

Company (name: string, **SOemail: string**, phoneNum: string, email: string)

- Candidate keys:
  - phoneNum
  - email

Guest (ID: integer, name: string)

MarketingRecruitment (**email: string**, socialMediaPlatform: string)

Hospitality (**email: string**, **caterer: string**)

Caterer (name: string, budget: integer)

SponsorshipOutreach (**email: string**, industry: string)

Mentor (**ID: integer**, bestLanguage: string, areaOfExpertise: string)

GuestSpeaker (**ID: integer**, topic: string)

CompanyRepresentative (**ID: integer**, **Cname: string**)

- Constraints: Cname is not null

HelpsRun (**vID: integer**, **hName: string**)

Contains (**hName: string**, **wTitle: string**)

RegistersFor (**pID: integer**, **wTitle: string**)

ParticipatesIn (**pID: integer**, **hName: string**)

Sponsors (**hName: string**, **cName: string**)

Attends (**gID: integer**, **hName: string**)

Mentors (**mID: integer**, **pID: integer**)

6. *SQL DDL*

Hackathon (name: string, **Oemail: string**, date: date, time: time, location: string)

```
CREATE TABLE Hackathon(
     name     CHAR(30) PRIMARY KEY,
     Oemail   CHAR(40) NOT NULL,
     date     DATE,
     time     TIME,
     location CHAR(40),
     FOREIGN KEY (Oemail) REFERENCES Organizer)
```

Volunteer (ID: integer, **MRemail: string**, name: string, role: string, email: string, phoneNum: string)

```
CREATE TABLE Volunteer(
     ID       INTEGER PRIMARY KEY,
     MRemail  CHAR(40) NOT NULL,
     name     CHAR(40),
     role     CHAR(20),
     email    CHAR(40),
     phoneNum CHAR(20),
     FOREIGN KEY (MRemail) REFERENCES MarketingRecruitment)
```

Workshop (title: string, time: time, roomNum: string)

```
CREATE TABLE Workshop(
     title   CHAR(80) PRIMARY KEY,
     time    TIME,
     roomNum CHAR(20))
```

Organizer (email: string, name: string, phoneNum: string)

```
CREATE TABLE Organizer(
     email    CHAR(30) PRIMARY KEY,
     name     CHAR(30),
     phoneNum CHAR(20))
```

Participant (ID: integer, name: string, email: string, **school: string**)

```
CREATE TABLE Participant(
     ID       INTEGER  PRIMARY KEY,
     name     CHAR(30),
     email    CHAR(20),
     school   CHAR(20) UNIQUE,
     FOREIGN KEY (school) REFERENCES School)
```

School (school: string, location: string)

```
CREATE TABLE ParticipantSchool(
     name   CHAR(40) PRIMARY KEY,
     location CHAR(30))
```

Company (name: string, **SOemail: string**, phoneNum: string, email: string)

```
CREATE TABLE Company(
     name     CHAR(30) PRIMARY KEY,
     SOemail  CHAR(30),
     phoneNum CHAR(20),
     email    CHAR(20),
     FOREIGN KEY (SOemail) REFERENCES SponsorshipOutreach)
```

Guest (ID: integer, name: string)

```
CREATE TABLE Guest(
     ID   INTEGER PRIMARY KEY,
     name CHAR(30))
```

MarketingRecruitment (**email: string,** socialMediaPlatform: string)

```
CREATE TABLE MarketingRecruitment(
     email               CHAR(30) PRIMARY KEY,
     socialMediaPlatform CHAR(30),
     FOREIGN KEY (email) REFERENCES Organizer)
```

Hospitality (**email: string**, **caterer: string**)

```
CREATE TABLE Hospitality(
     email   CHAR(30) PRIMARY KEY,
     caterer CHAR(30) UNIQUE,
     FOREIGN KEY (caterer) REFERENCES Caterer
     FOREIGN KEY (email) REFERENCES Organizer)
```

Caterer (name: string, budget: integer)

```
CREATE TABLE Caterer(
     name   CHAR(30) PRIMARY KEY,
     budget INTEGER)
```

SponsorshipOutreach (**email: string**, industry: string)

```
CREATE TABLE SponsorshipOutreach(
     email    CHAR(30) PRIMARY KEY,
     industry CHAR(30),
```

```
     FOREIGN KEY (email) REFERENCES Organizer)
```

Mentor (**ID: integer**, bestLanguage: string, areaOfExpertise: string)

```
CREATE TABLE Mentor(
     ID              INTEGER PRIMARY KEY,
     bestLanguage    CHAR(20),
     areaOfExpertise CHAR(30),
     FOREIGN KEY (ID) REFERENCES Guest)
```

GuestSpeaker (**ID: integer**, topic: string)

```
CREATE TABLE GuestSpeaker(
     ID    INTEGER PRIMARY KEY,
     topic CHAR(50),
     FOREIGN KEY (ID) REFERENCES Guest)
```

CompanyRepresentative (**ID: integer**, **Cname: string**)

```
CREATE TABLE CompanyRepresentative
  (ID    INTEGER PRIMARY KEY,
   Cname CHAR(30) NOT NULL,
   FOREIGN KEY(ID)    REFERENCES Guest,
   FOREIGN KEY(Cname) REFERENCES Company ON DELETE CASCADE)
```

HelpsRun (**vID: integer**, **hName: string**)

```
CREATE TABLE HelpsRun
  (vID   INTEGER,
   hName CHAR(30),
   FOREIGN KEY(vID)   REFERENCES Volunteer,
   FOREIGN KEY(hName) REFERENCES Hackathon,
   PRIMARY KEY(vID, hName))
```

Contains (**hName: string**, **wTitle: string**)

```
CREATE TABLE Contains
  (hName  CHAR(30),
   wTitle CHAR(80),
   FOREIGN KEY(hName)  REFERENCES Hackathon,
   FOREIGN KEY(wTitle) REFERENCES Workshop,
   PRIMARY KEY(hName, wTitle))
```

RegistersFor (**pID: integer**, **wTitle: string**)

```
CREATE TABLE RegistersFor
  (pID    INTEGER,
   wTitle CHAR(80),
   FOREIGN KEY(pID)    REFERENCES Participant,
   FOREIGN KEY(wTitle) REFERENCES Workshop,
   PRIMARY KEY(pID, wTitle))
```

ParticipatesIn (**pID: integer**, **hName: string**)

```
CREATE TABLE ParticipatesIn
  (pID   INTEGER,
   hName CHAR(30),
   FOREIGN KEY(pID)   REFERENCES Participant,
   FOREIGN KEY(hName) REFERENCES Hackathon,
   PRIMARY KEY(pID, hName))
```

Sponsors (**hName: string**, **cName: string**)

```
CREATE TABLE Sponsors
  (hName CHAR(30),
   cName CHAR(30),
   FOREIGN KEY(hName) REFERENCES Hackathon,
   FOREIGN KEY(cName) REFERENCES Company ON DELETE CASCADE,
   PRIMARY KEY(hName, cName))
```

Attends (**gID: integer**, **hName: string**)

```
CREATE TABLE Attends
  (gID   INTEGER,
   hName CHAR(30),
   FOREIGN KEY(gID)   REFERENCES Guest,
   FOREIGN KEY(hName) REFERENCES Hackathon,
   PRIMARY KEY(gID, hName))
```

Mentors (**mID: integer**, **pID: integer**)

```
CREATE TABLE Mentors
  (mID INTEGER,
   pID INTEGER,
   FOREIGN KEY(mID) REFERENCES Mentor,
   FOREIGN KEY(pID) REFERENCES Participant,
   PRIMARY KEY(mID, pID))
```

7. Populated Tables

- See end of document.

8. Queries

- Selection
    - Select the workshops hosted in room #230
- Projection
    - Find the IDs of all the company representatives from Show Mobile that will be attending NWminus
- Join
    - Find the schools of all the participants who registered for a workshop
- Division
    - Find all the names of the hackathons that a specific volunteer helped out in
- Insertion
    - Add a new sponsor for a specific hackathon
- Deletion
    - Delete a volunteer from the list of volunteers
- Update
    - Update a participant's email and school

Hackathon

name	Oemail	date	time	location
nwHucks	maryzhang@gmail.com	1/13/2021	08:00	Vancouver, BC
cmdM	itsjen@hotmail.com	3/12/2021	13:00	Vancouver, BC
HuckCamp	notrickyweston@gmail.com	10/25/2021	11:00	Vancouver, BC
Code the Difference	itsjen@hotmail.com	7/15/2021	12:00	Burnaby, BC
Huckleberry Finn	notrickyweston@gmail.com	12/12/2021	07:00	Surrey, BC
ChillyHucks	andyn3@hotmail.com	6/2/2021	15:00	Chilliwack, BC

Relates to:
Organizer
Contains

Volunteer

ID	MRemail	name	role	email	phoneNum
1	robsonstreet@live.com	Naveed Gonzales	Tech Support	ngonzales@hotmail.com	604-735-2247
2	wilburdmitriyev@gmail.com	Meghan Dillard	General Assistance	megh.dill89@gmail.com	778-288-4785
3	lilypad101@hotmail.com	Mustafa Derrick	Runner	d_mustafaax@gmail.com	435-036-7441
4	robsonstreet@live.com	King Perez	Tech Support	iamtheking@live.com	888-757-8748
5	robsonstreet@live.com	Jamel Hastings	Tech Support	strawberry-jam123@yahoo.ca	604-203-6930
6	kevinli@gmail.com	Aras Golden	General Assistance	arasg@gmail.com	604-774-0474
7	robsonstreet@live.com	Allie Yoshida	Runner	allielovesyou@hotmail.com	778-989-6675

Relates to:
MarketingRecruitment
HelpsRun

Workshop

title	time	roomNum
Git 101: How to use the popular VCS	14:00	230
Introduction to Python	16:00	100A
Getting Started with Goggle Cloud Tools	09:00	3305
Architecture of Cup Towers	19:00	7
Surviving the Night at a Hackathon	21:00	444

Relates to:
Contains

RegistersFor

Organizer

email	name	phoneNum
kevinli@gmail.com	Kevin Li	604-523-5326
harriet.092@hotmail.com	Harriet Richards	604-886-7455
n.jordan@gmail.com	Nahla Jordan	778-285-0038
adnaan_bread@yahoo.com	Adnaan Turner	778-593-3060
wilburdmitriyev@gmail.com	Wilbur Dmitriyev	605-876-9993
robsonstreet@live.com	Andreas Robson	604-346-6363
maryzhang@gmail.com	Mary Zhang	299-649-3685
jeff.brew@hotmail.com	Jeffrey Brewer	604-622-4969
itsjen@hotmail.com	Jennifer Fitspatrick	778-326-9999
hannahhayes@ubc.ca	Hannah Hayes	238-683-4781
eastofeden@gmail.com	Eden Preece	235-554-9080
lilypad101@hotmail.com	Lily Wang	778-112-1420

Relates to:
Hackathon

notrickyweston@gmail.com	Ricky Easton	604-292-0880
kkkchen@hotmail.com	Kevin Chen	604-789-2051
andyn3@hotmail.com	Andy Nguyen	604-203-6209
beaufortm@live.com	Monica Beaufort	635-129-5802
clairdelune7@yahoo.com	Clair Mathis	778-221-1593
harryds@bing.com	Harry De Santiago	778-373-5944
aster.l@gmail.com	Aster Lu	604-209-5328

MarketingRecruitment

email	socialMediaPlatform
kevinli@gmail.com	Twitter
robsonstreet@live.com	Facebook
wilburdmitriyev@gmail.com	Instagram
lilypad101@hotmail.com	TikTok
clairdelune7@yahoo.com	LinkedIn

Relates to:
Volunteer
Organizer

Hospitality

email	caterer
harriet.092@hotmail.com	Tim Horton's
n.jordan@gmail.com	Subway
adnaan_bread@yahoo.com	Domino's Pizza
jeff.brew@hotmail.com	Canadian Liquor Store
kkkchen@hotmail.com	Purdy's Chocolates

Relates to:
Organizer

Caterer

name	budget
Tim Horton's	3070
Subway	500
Domino's Pizza	800
Canadian Liquor Store	2000
Purdy's Chocolates	440

Relates to:

SponsorshipOutreach

email	industry
aster.l@gmail.com	Technology
harryds@bing.com	Finance
beaufortm@live.com	Consumer
eastofeden@gmail.com	Entertainment
hannahhayes@ubc.ca	Manufacturing

Relates to:
Company
Organizer

Participant

ID	name	email	school
1	Amy Huynh	amyh32@gmail.com	UBC

Relates to:
ParticipatesIn
Mentors

2	Laurel Swanson	lswan@gmail.com	UBC
3	Zuzanna Spooner	aforkandaspoon@hotmail.com	SFU
4	Florrie Tate	florriexd@gmail.com	UBC
5	Aiysha Little	little.aiysh@yahoo.com	UW
6	Alannah Serrano	alannah.serrano@hotmail.com	UW
7	Malikah Mcfarlane	purple_dinosaur@gmail.com	UofT
8	Elliott Finley	elliotfinleyy@gmail.com	UBC
9	Thiago Beltran	thiagoisme@live.com	UVic
10	Aj Dale	saymy_name@hotmail.com	UBC

RegistersFor

School

name	location
UBC	Vancouver, BC
SFU	Burnaby, BC
UW	Waterloo, ON
UofT	Toronto, ON
UVic	Victoria, BC

Relates to:

Company

name	SOemail	phoneNum	email
Macrohard	eastofeden@gmail.com	604-232-3632	info@macrohard.com
Rainforest	harryds@bing.com	235-547-7347	support@rainforest.com
Goggle	aster.l@gmail.com	604-882-7313	goggle@goggle.com
StickerDonkey	hannahhayes@ubc.ca	604-830-4540	hr@stickerdonkey.com
Chirpsuite	beaufortm@live.com	888-628-9074	bird@chirpsuite.com

Relates to:

CompanyRepresentative

Guest

ID	name
1	Santa Oyes
2	Leo Ramirez
3	Amelia-Grace Campos
4	Sian Molloy
5	Kaydan Kirk
6	Dante Baird
7	Zainab Dolan
8	Iylah Ramsey
9	Wendy Carrillo
10	Kwabena Hale
11	Joao Fellows
12	Fynley Figueroa
13	Christine Francis
14	Yahya Schaefer
15	Finnian Wharton

Relates to:

Attends

16	Daanyaal Hernandez
17	Reyansh Chaudhri

Mentor

ID	bestLanguage	areaOfExpertise
4	Python	Machine Learning
5	C	IoT
10	SQL	Databases
14	Javascript	Web Development
15	Java	Backend
17	Swift	iOS

Relates to:
Mentors
Guest

GuestSpeaker

ID	topic
1	I Am Once Again Asking
7	Saving the Planet through Technology
8	Saving the Planet through Technology
14	The Superiority of Dynamically-typed Languages
3	Networking Tips: How To Remember Someone's Name
12	Connecting Industry to Code

Relates to:
Guest

CompanyRepresentative

ID	Cname
2	StickerDonkey
6	ChirpSuite
7	Rainforest
8	Rainforest
11	Goggle
16	StickerDonkey

Relates to:
Company
Guest

HelpsRun

vID	hName
1	nwHucks
1	cmdM
2	nwHucks
3	nwHucks
4	Code the Difference
5	Huckleberry Finn
6	nwHucks
6	Code the Difference
7	cmdM
7	ChillyHucks

Relates to:
Volunteer
Hackathon

Contains

hName	wTitle
nwHucks	Introduction to Python
nwHucks	Getting Started with Goggle Cloud Tools
cmdM	Git 101: How to use the popular VCS
Code the Difference	Surviving the Night at a Hackathon
Code the Difference	Git 101: How to use the popular VCS
ChillyHucks	Architecture of Cup Towers

Relates to:
Hackathon
Workshop

RegistersFor

pID	wTitle
1	Introduction to Python
2	Introduction to Python
10	Git 101: How to use the popular VCS

Relates to:
Participant
Workshop

10	Architecture of Cup Towers
7	Surviving the Night at a Hackathon

ParticipatesIn

Relates to:
Participant
Hackathon

pID	hName
1	nwHucks
2	nwHucks
3	cmdM
4	HuckCamp
5	nwHucks
6	Code the Difference
7	Code the Difference
8	Huckleberry Finn
9	nwHucks
10	ChillyHucks
10	cmdM

Sponsors

Relates to:
Hackathon
Company

hName	cName
nwHucks	Macrohard
nwHucks	StickerDonkey
Code the Difference	Rainforest
Huckleberry Finn	Chirpsuite
ChillyHucks	Goggle

Attends

Relates to:
Guest
Hackathon

gID	hName
1	nwHucks
1	cmdM
5	HuckCamp

10	Code the Difference
12	Code the Difference

Mentors

mID	pID
5	4
10	6
14	1
15	9
17	10

Relates to:

Mentor

Participant