IS 503

Database Concepts and Applications

PROJECT REPORT
Project Topic: An Image Hosting Platform

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1. PROJECT DESIGN

In this project, I designed a sample database for an online image hosting platform where

- Users can upload images
- Users can create galleries with uploaded images
- Users can comment on others' uploaded images
- User can vote others' uploaded images

All project is developed with Mysql Workbench.

2. ASSUMPTIONS

In this project, there is no age limit for users. Users with any age can use the application however, some images which have sensitive contents are flagged with nsfw. (e.g. violence or sexual contents)

All users can comment on and/or vote others' images.
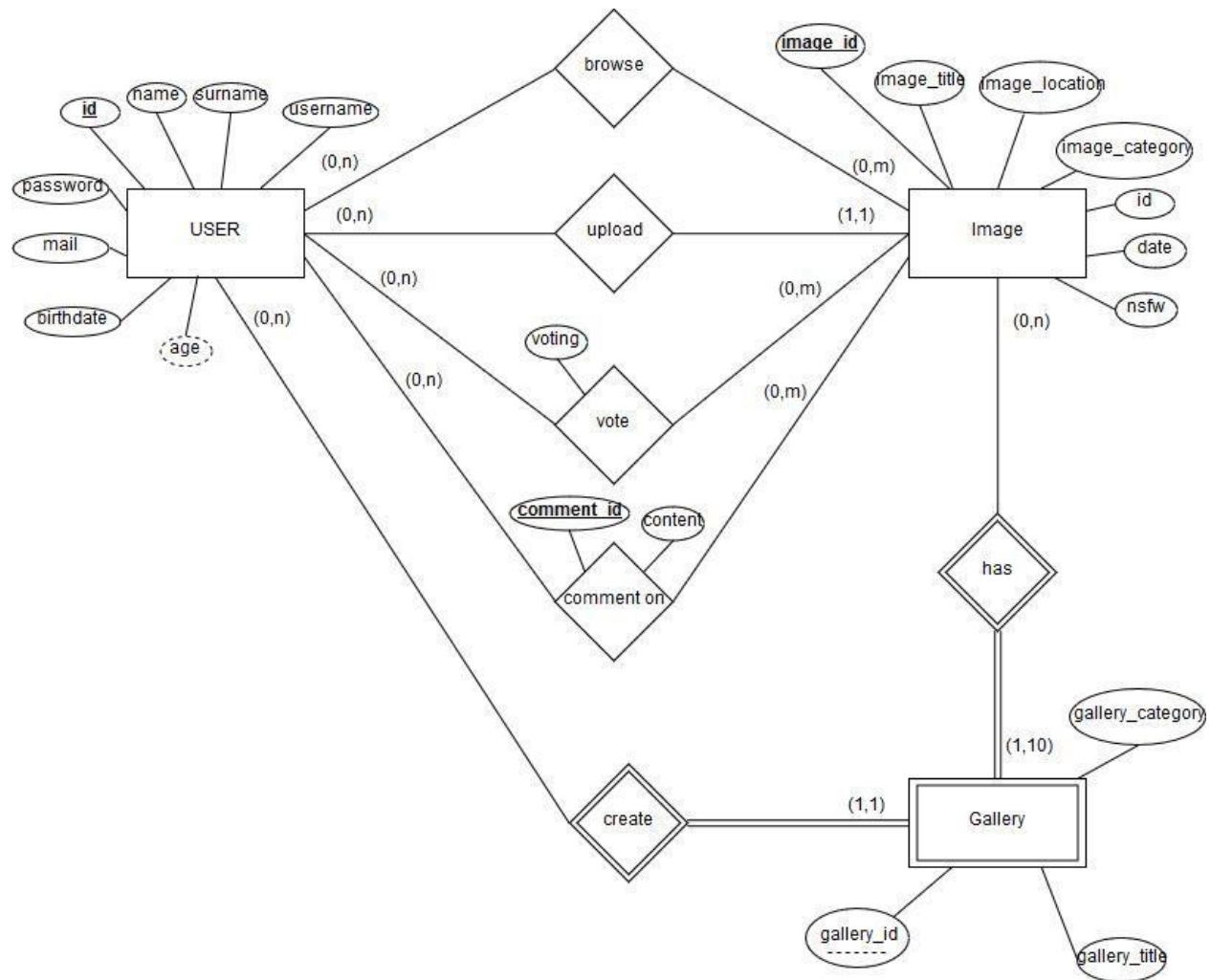
Users vote others' images from 1 to 5 points.

Users can create galleries with their images, but with max 10 images. Even with one image a gallery can be created.
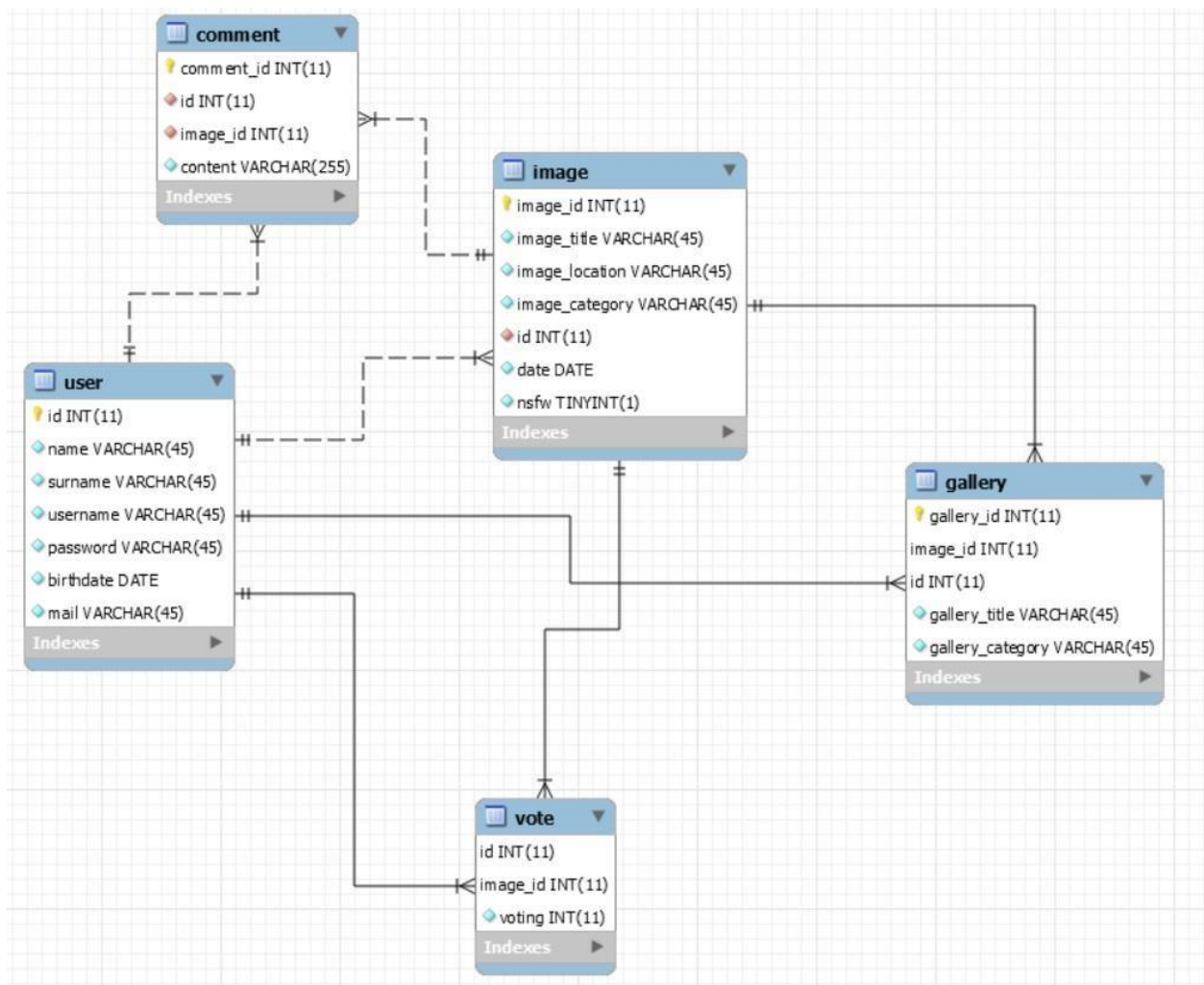
Since this is a sample,

- it is assumed that this application used by 30 users.
- it is assumed that 45 images were uploaded until now.
- It is assumed that 3 galleries were created until now.
- It is assumed that 50 comments were made.
- It is assumed that 100 voting were done.

3. SCHEMA DESIGN

Schema Design is made according to ER Diagram which is shown in the following figures.

ER Diagram of An Image Hosting Platform

ER Diagram of An Image Hosting Platform (Crow's Foot)

Entities:

- User
- Image
- Gallery

Relations:

- Comment
- Browse
- Vote
- Upload
- Create

Relational Mapping

user

id	name	surname	username	password	birthdate	mail

Primary Key: id

image

image_id	image_title	image_location	image_category	id	date	nsfw

Primary Key: image_id

Foreign Key: id references id in user table

gallery

gallery_id	image_id	id	gallery_title	gallery_category

Primary Keys: gallery_id, image_id, id

Foreign Keys: "id references id in user table", "image_id references image_id in image table"

comment

comment_id	id	image_id	content

Primary Key: comment_id

Foreign Keys: "id references id in user table", "image_id references image_id in image table"

vote

id	image_id	voting

Primary Keys: id, image_id

Foreign Keys: "id references id in user table", "image_id references image_id in image table"

4. TABLES AND QUERIES

4.1 TABLES AND TUPLES
User Table:

id	name	surname	username	password	birthdate	mail
1	Henriette	Swaniawski	henriette33	c1ca6ca6e25c85c6abcb258ca30a8b391725ae12	1988-11-18	henriette@example.net
2	Alexandria	Graham	graham.a	f2b9d2c1392afb6a17f2a986ac3d40366ad2c644	1984-10-14	graham786@example.org
3	Deja	Hartmann	dejjjaa	6d422aa3cfd64e48019692cf66be7fc935904956	2006-01-28	dejaa06@example.org
4	Jamison	Pacocha	throne	3bb6bd88a30cb224e0c9a6425bfeebf5984a633e	2001-03-21	pacochaa@gmail.com
5	Larissa	Volkman	hermonie	6223ec5ff9ed9c9a632aa4019618d328f134d412	1990-04-18	blair04@hotmail.com
6	Shaina	DuBuque	shainasss	5a17ca35223a9f25a58aba169e0d5d9a01661406	1995-09-29	shaina523@yahoo.com
7	Arvilla	Johnson	armadillos	33a21717892cde06962eb6f425e22845b14cc61a	1988-02-29	armadillo88@gmail.com
8	Alene	Boyle	boyle44	9cee1e14895b30b74419d6f699bbd21d84b3a7df	1975-06-23	aleneboyle@hotmail.com
9	Virginie	Kuhlman	kulhman.virginie	c0e010ce9e02101a702326c639d426c1004a64b9	2000-05-26	kuhlmann@example.com
10	Marlen	Reynolds	mreynolds0	5134837114421df482ef4158fa46a36a3a00a296	1996-12-12	reynolds211@yahoo.com
11	Joshuah	Koepp	joshh15	d52fa4e947465c390276d6637bb251afbf5dc42e	2004-12-02	joshhman@hotmail.com
12	Ashleigh	Mitchell	mitchell30	287e3e04233b549025aee40251944976ac9f772f	1989-08-27	mitchell17@example.org
13	Okey	Weissnat	excalibur	7d870ba655b75134d6851e90b4e9afa3e01c42c5	1990-07-11	weissnatt77@gmail.com
14	Talia	Brown	princeses00	2ca28f2dfcf2107edc3458b67a9827b59ea1fe43	1993-09-03	modern.princeses@gmail...
15	Alvis	Douglas	douggy	c3b2d29b0c87ae0eeabcdeca29ffed7f4d5062bb	1984-07-15	douglas@example.org
16	Furman	Kuhn	alexx	78ec23bc9bb8ed7be123ff734f0d660604e07cbb	1995-11-18	kuhnn@yahoo.com
17	Isabella	Haag	haageen	82b733dc15100fca787943d0051cc2eea50b1e14	1993-11-03	haag558@gmail.com
18	Evangeline	Bernhard	senbernhard.45	4a5f017e2de38d7fbfc35f452a01a98959363388	1973-02-12	bernhardevageline@hot...
19	Meggie	Wisoky	meggy	f77f2f73ba1f0bb2872c790cdf1d660e1c4c62a6	1999-09-24	mgyy@example.net
20	Cara	Thiel	cara.thiel	c09ed72ca965aff1eaca275e3dfe9398cc2217f1	1983-02-11	cara.thiel@gmail.com
21	Adolph	Schuster	schuster.a22	6ff789ee2fa22c14247abf00a3d2f1d210988bc7	1996-07-24	schstradolph@example.net
22	Antonette	Kunde	antonette.pisa	51eb702842ad800b1c9bfa408f44f1a4b8ac9098	1980-03-08	antonette@example.org
23	Morgan	Stamm	stamm23	cc6f4722e8af2ed61580bfa3755d604d803ec0e4	2005-08-10	stammorgan@gmail.com
24	Harvey	Mertz	mertz.hrvy	3d21a85b41c3056f1bd0d3eb0a589f84d1e56f2f	1985-03-08	mertzzz@example.com
25	Alexie	Mitchell	alexiee.m78	c8a270ed1dee0811c21ae33022bf6d93f334d3b8	1978-05-22	alexie78@yahoo.com
26	Alvena	Jerde	jerde.alvena33	be49959c9bdc09e19f536516f1df6a5d2198a870	1999-11-02	jerdealvena@gmail.com
27	Tracy	Boehm	boehm.trcy	d72e528e0434a245a2f69a3497fc2ee8d9c6944c	1991-11-16	boehm28@example.com
28	Hassan	Reichert	reichert30	9f5b69c2606c134ce50a2efbe9b66e392187ee85	1989-07-03	hreichert@example.org
29	Leanna	Cruickshank	cruickss	4d087c6dae0a742b3574453942e57abb1ee0d3a1	2009-06-16	leannacrcks@hotmail.com
30	Alex	Hagenes	hagenees.alex	9d441b98e0850721182efb71acceac5e790fa7a2	2000-03-13	alex985@gmail.com
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Gallery Table:

gallery_id	image_id	id	gallery_title	gallery_category
1	7	2	my view	public
1	8	2	my view	public
1	38	2	my view	public
2	31	5	fun	unrated
2	45	5	fun	unrated
3	10	25	+18	private
3	20	25	+18	private
NULL	NULL	NULL	NULL	NULL

Image Table:

image_id	image_title	image_location	image_category	id	date	nsfw
1	Gryphon.	0616 Angus Shore	social	11	2016-03-17	0
2	I don't!	5656 Schneider Parks	sport	16	2018-01-15	1
3	Bobby	9068 Clare Hills	social	20	2017-12-12	0
4	Alice.	72317 Daija Harbor Suite 397	entertainment	26	2019-01-03	1
5	Mistake	18160 Yost Mills	social	23	2014-05-06	0
6	Sunshine	4361 Nikita Glen Suite 579	entertainment	24	2018-11-27	0
7	Moonwalk	5656 Schneider Parks	sport	2	2016-03-17	1
8	Daddy	18255 Herr Mill	social	2	2015-02-02	0
9	Hermonie	434 High Park Suites	fashion	13	2014-07-05	0
10	Which one?	9068 Clare Hills	fashion	25	2012-09-25	1
11	Thruthfull	1542 Side Park 784	sport	17	2019-03-05	0
12	Colorless	434 High Park Suites	social	8	2017-06-27	0
13	Book	72 Dai Suite 22	entertainment	5	2015-03-15	0
14	NO mistake	431 Glen Road	sport	24	2016-05-17	0
15	Show	53913 Kristofer Park	entertainment	17	2017-09-09	0
16	Go go go	31379 Baron Row	sport	29	2018-02-04	0
17	Skirt	996 Reggie Port Suite 541	fashion	15	2019-01-17	0
18	Painting	85989 Leif Prairie Apt. 581	social	4	2018-10-18	1
19	Twinkle	540 Rico Bypass Apt. 479	fashion	28	2017-06-03	0
20	Rabbit-Hole	57090 Denesik Trafficway S…	social	25	2016-08-07	1
21	This way!	289 Michel Forges Apt. 167	sport	14	2018-04-01	0
22	Caterpillar	823 Ora Flats Suite 479	sport	27	2019-02-04	0
23	Dodo	5803 Swaniawski Centers	entertainment	13	2017-06-15	0
24	Duchess	6278 Feeney Green Apt. 160	social	3	2018-09-13	0
25	Yummy	21229 Alivia Path Suite 871	social	19	2015-07-02	0
26	Hatter	6137 Gottlieb Lodge	fashion	8	2016-03-31	0
27	Court	760 Serena Skyway	sport	30	2018-06-02	1
28	Dont Look	4450 Spencer Pike Apt. 180	entertainment	10	2017-11-17	1
29	Irony	12727 Effertz Plains	entertainment	8	2016-04-18	0
30	Family	69219 Hintz Brook Apt. 596	social	22	2017-09-03	0
31	Holiday	585 Mills Key Suite 738	social	5	2018-07-01	0
32	Articles	325 Kertzmann Glens Suite 253	social	6	2016-12-15	0
33	Tomorrow	8868 Monty Mews Apt. 776	fashion	12	2018-08-16	0
34	Blouse	91888 Tomasa Lodge Apt. 647	fashion	21	2017-05-17	0
35	Skor	9654 Patience Divide Suite 448	sport	1	2015-12-26	0
36	Skater	79822 Dibbert Circle	sport	7	2018-04-15	1
37	Mini or Tiny	7385 Vivian Mountain	fashion	18	2018-07-08	0
38	Beaches	6203 Hardy Hill	social	2	2017-08-11	0
39	Sandy	21229 Alivia Path Suite 871	social	19	2017-07-27	1
40	Glasses	6137 Gottlieb Lodge	fashion	8	2018-03-30	0
41	Flies	760 Serena Skyway	sport	30	2016-02-04	1
42	There she goes	4450 Spencer Pike Apt. 180	social	10	2015-09-16	0
43	Trend	12727 Effertz Plains	sport	9	2017-10-17	0
44	Oh Honey	69219 Hintz Brook Apt. 596	social	22	2018-05-27	0
45	Trick or Treat!	585 Mills Key Suite 738	social	5	2019-02-03	0
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Comment Table:

comment_id	id	image_id	content
1	20	42	Quis accusamus vitae odit temporibus quae quia. Quas laborum iure quis vitae nesciunt doloribus omnis. Praesentium odit pariatur do…
2	27	14	Doloremque debitis aut libero ducimus corrupti ea. Inventore cum totam a qui facilis provident consectetur. Facilis voluptate quas be…
3	5	32	Ea id voluptatem vero fugit. Deleniti accusamus vero accusantium qui. Occaecati veritatis optio illum ipsum voluptatibus et.
4	7	6	Labore dolor fuga autem assumenda. Non cum numquam autem nulla cumque est. Quae mollitia vel omnis maxime omnis.
5	30	40	Molestiae nihil sit quaerat expedita corrupti iure. Ut aut rerum vitae laborum aut aut doloremque. Harum dolores blanditiis facere. No…
6	9	42	Amet dolores excepturi quaerat cum consequatur. Doloribus dolores voluptates temporibus eius aut qui. Est placeat omnis ab cum. C…
7	15	1	Aut cumque commodi rerum eius qui velit iste. Delectus odit doloremque omnis voluptate quia esse reiciendis quae. Sapiente aut nem…
8	7	27	Voluptates ut voluptatem aspernatur asperiores. Quisquam aut dignissimos officiis veniam et et soluta recusandae. Quidem et quibu…
9	20	20	Harum id ipsam sunt alias. Tempore assumenda fuga laudantium ut. Ut sapiente soluta saepe culpa cupiditate nostrum rerum.
10	18	8	Fuga non aut sed voluptatem et. Dolor odio consectetur libero inventore repudiandae veritatis quidem veritatis.
11	5	5	At quod aut quam unde dolor cumque in. Illum voluptas velit qui veritatis totam praesentium. Amet nobis officiis rem. Tempora rerum…
12	17	40	Eveniet quis nemo et. Saepe voluptatem ea sequi sed.
13	6	16	Aut ut aut molestiae qui. Omnis neque repellat rerum reprehenderit. Voluptatem labore ipsa aspernatur quo nihil.
14	29	13	Recusandae assumenda officiis fugit dolores nam. Et sint libero repellendus facilis iste architecto. Hic error veritatis ex voluptates as…
15	19	11	Enim amet aut est nihil voluptatem esse dolorum. Eos voluptatem ea quis ut iusto ratione. Corporis est earum totam dicta voluptate…
16	2	12	Voluptatibus aut sapiente fugit reprehenderit necessitatibus laborum pariatur. Magnam qui quod natus delectus eos mollitia. Enim dol…
17	3	23	Ullam distinctio fugit vel eveniet mollitia et. Repellendus maiores debitis quo in voluptatum dolore. Veritatis eos dolorum sed voluptas …
18	15	45	Delectus et maiores non cum est quaerat explicabo possimus. Reiciendis dolores unde sed et atque sunt doloremque. Minus sit aute…
19	14	25	Mollitia voluptas qui fugiat voluptatibus voluptatem reprehenderit rerum. Molestiae rerum repellendus qui aut voluptas nemo. Fugit m…
20	18	19	Quisquam expedita beatae vitae aspernatur. Veniam ipsa doloribus non animi temporibus facilis similique. Est occaecati omnis autem …
21	16	10	Voluptate fuga aut temporibus adipisci aspernatur nemo modi. Odio doloremque sapiente asperiores itaque soluta earum veniam. Dic…
22	29	9	Nulla aliquid ea nemo tenetur est. Non ducimus nam quia sed sint. Repellat dolorum dolorum consequatur quo natus expedita sapient…
23	8	17	Libero et placeat aut debitis qui quam aut. Aliquid saepe corrupti et corrupti. Qui eveniet a asperiores alias officiis. Ut quo velit enim …
24	26	20	Non ut occaecati similique illum aut aspernatur ex voluptates. Facilis non est quia cumque ratione ratione adipisci maxime. Sint repell…
25	16	43	Natus molestias dolor dolorem aperiam. Iste voluptates et possimus nobis mollitia. Veniam id quas iure et impedit.
26	20	26	Iure dolor velit similique tempora fugiat tenetur. Doloribus dignissimos ab illum. Quasi praesentium ab voluptatem nesciunt.
27	25	29	Aliquid ut tenetur ullam quia. Perferendis dolorum alias mollitia veritatis error. Minima nostrum commodi neque eos officia aut.
28	21	9	Exercitationem voluptas quisquam consequatur adipisci sit qui quis. Delectus voluptate commodi porro. Consectetur voluptatum ad a…
29	11	5	Voluptatem qui quas sed. Quo ipsum eum reprehenderit alias maxime voluptatem laudantium. Error id autem sequi error ullam quis.
30	16	6	Reiciendis dicta nisi distinctio sit vel iusto. Eveniet mollitia culpa et perferendis voluptas vitae dolores. Libero qui qui rem molestias au…
31	23	12	Vel pariatur culpa alias voluptatem natus ea provident. Magni cupiditate molestiae culpa hic dolorem ea dolor. Qui vero vitae qui aliqu…
32	10	7	Dolor repellat quasi maxime facere qui aliquam ratione. In architecto ad ullam quis tempore. Temporibus numquam vero sit ut amet. …
33	6	14	Modi qui perspiciatis dolor et sed cupiditate optio. Recusandae vel ut accusantium ratione laborum illum. Maxime quod iusto veniam i…
34	26	18	Vel facilis blanditiis voluptatem officiis repellat. Quas consequatur unde tenetur officiis.
35	29	24	Qui laboriosam voluptatem maiores repudiandae. Aliquam et deleniti in magni tenetur placeat. Ducimus ullam labore velit magni accus…
36	13	39	Rerum debitis laudantium iste sed sit aut. Nemo dolor corporis sed qui est quia rerum.
37	22	34	Est molestiae dolores est et molestias ut. Quos illum fuga error facere hic laborum ipsam.
38	11	34	Accusamus unde est dolore delectus. Ratione dolorum maiores nihil nesciunt. Soluta non molestias eos rem. Laborum sunt accusantiu…
39	17	22	Iure distinctio nihil ipsum porro accusamus et. Temporibus dolorem vel dolorem repellendus in molestias officia deserunt. Maiores et ill…
40	9	31	Veritatis similique alias id ut consectetur ut culpa. Eum dolorem fugit fuga eveniet dolores expedita. Dolores numquam repellat ut. Ve…
41	24	40	Est qui molestias aut. Natus occaecati accusantium modi. Reiciendis qui possimus qui saepe veritatis.
42	11	43	Sed quam distinctio quia explicabo incidunt. Praesentium debitis labore odio. Odio quis officiis natus repellat temporibus fugiat.
43	30	16	Voluptatum aperiam aut sunt. Quo delectus dicta error ut.
44	11	17	Quibusdam quod animi ipsum voluptas enim non aut. Ut voluptas nemo reprehenderit molestiae eum. Distinctio modi distinctio sint na…
45	4	24	Excepturi ipsum et ut fugiat doloribus perferendis. Architecto cumque quia ut enim possimus id. Voluptatem est iusto omnis qui sapie…
46	12	11	Atque officiis omnis sint occaecati. Cumque laudantium sunt autem.
47	18	10	Sit qui quo nisi. Aut voluptatem nemo aut. Quas repellat rerum magni molestiae quia et. Libero dignissimos sed rerum rerum nostrum …
48	21	21	Ea et vero consequatur. Ut provident molestiae quia illum unde perferendis. Eveniet omnis perspiciatis sed et ut cum ab. Quibusdam …
49	14	14	Repellendus unde occaecati tempore numquam. Quia ullam occaecati unde harum sequi consequatur. Laboriosam officia ab voluptat…
50	27	37	Qui ut qui cum velit. Vitae atque perspiciatis voluptates sed. Aut nulla illo numquam et ullam doloribus voluptatibus. Molestias et eius …
NULL	NULL	NULL	NULL

Vote Table:

id	image_id	voting
1	34	4
1	44	5
2	7	1
2	8	3
2	11	4
2	22	2
4	1	4
4	5	4
4	9	3
4	11	5
5	6	5
5	22	2
6	18	3
6	25	5
6	30	4
7	5	5
7	9	5
7	18	4
7	29	2
8	4	5
8	12	4
8	15	5
8	17	3
8	20	3
8	21	3
8	30	1
9	5	5
9	23	1
10	11	5
10	12	3
10	16	3
10	25	4
11	2	2
11	42	5
12	39	1
12	40	4
15	1	2
15	7	2
15	33	3
15	38	2
17	11	5
17	13	5
17	28	5
17	35	1
17	42	3
18	19	4
18	25	5
18	26	5
18	37	4
19	1	5
19	3	5
19	13	4
19	17	3
19	26	4
19	44	4
20	2	5
20	3	5
20	9	5
20	16	2
20	34	2
20	45	3
21	11	2
21	14	5
21	17	3
21	18	5
21	32	4
22	3	4
22	6	5
22	23	3
22	29	5
23	11	4
23	15	4
24	12	5
24	37	2
24	44	5
25	10	5
25	20	5
25	40	5
26	13	2
26	18	4
26	27	3
26	36	4
26	42	4
27	6	5
27	9	4
27	14	5
27	37	1
28	1	4
28	11	2
28	23	1
28	35	2
28	45	4
29	19	4
29	28	5
29	37	3
30	1	3
30	2	5
30	16	5
30	38	5
30	45	3
NULL	NULL	NULL

SQL of Creation of Tables:

User Table

```
CREATE TABLE `user` (
 `id` int(11) NOT NULL AUTO_INCREMENT,
 `name` varchar(45) COLLATE utf8_bin NOT NULL,
 `surname` varchar(45) COLLATE utf8_bin NOT NULL,
 `username` varchar(45) COLLATE utf8_bin NOT NULL,
 `password` varchar(45) COLLATE utf8_bin NOT NULL,
 `birthdate` date NOT NULL,
 `mail` varchar(45) COLLATE utf8_bin NOT NULL,
 PRIMARY KEY (`id`),
 UNIQUE KEY `mail_UNIQUE` (`mail`),
 UNIQUE KEY `username_UNIQUE` (`username`),
 UNIQUE KEY `user_id_UNIQUE` (`id`)
) ENGINE=InnoDB AUTO_INCREMENT=61 DEFAULT CHARSET=utf8
COLLATE=utf8_bin;
```

Image Table

```
CREATE TABLE `image` (
 `image_id` int(11) NOT NULL,
 `image_title` varchar(45) CHARACTER SET utf8 COLLATE utf8_bin NOT NULL,
 `image_location` varchar(45) CHARACTER SET utf8 COLLATE utf8_bin NOT NULL,
 `image_category` varchar(45) CHARACTER SET utf8 COLLATE utf8_bin NOT NULL,
 `id` int(11) NOT NULL,
```

`date` date NOT NULL,

`nsfw` tinyint(1) NOT NULL,

PRIMARY KEY (`image_id`),

KEY `image_fk_1_idx` (`id`),

CONSTRAINT `image_fk_1` FOREIGN KEY (`id`) REFERENCES `user` (`id`) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE=InnoDB DEFAULT CHARSET=utf8;

Gallery Table:

CREATE TABLE `gallery` (

`gallery_id` int(11) NOT NULL,

`image_id` int(11) NOT NULL,

`id` int(11) NOT NULL,

`gallery_title` varchar(45) COLLATE utf8_bin NOT NULL,

`gallery_category` varchar(45) COLLATE utf8_bin NOT NULL,

PRIMARY KEY (`gallery_id`,`image_id`,`id`),

KEY `gallery_fk_1_idx` (`image_id`),

KEY `gallery_fk_2_idx` (`id`),

CONSTRAINT `gallery_fk_1` FOREIGN KEY (`image_id`) REFERENCES `image` (`image_id`) ON DELETE RESTRICT ON UPDATE RESTRICT,

CONSTRAINT `gallery_fk_2` FOREIGN KEY (`id`) REFERENCES `user` (`id`) ON DELETE RESTRICT ON UPDATE RESTRICT

) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_bin;

Comment Table:

```sql
CREATE TABLE `comment` (
 `comment_id` int(11) NOT NULL,
 `id` int(11) NOT NULL,
 `image_id` int(11) NOT NULL,
 `content` varchar(255) CHARACTER SET utf8 COLLATE utf8_bin NOT NULL,
 PRIMARY KEY (`comment_id`),
 KEY `comment_fk_1_idx` (`id`),
 KEY `comment_fk_2_idx` (`image_id`),
 CONSTRAINT `comment_fk_1` FOREIGN KEY (`id`) REFERENCES `user` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,
 CONSTRAINT `comment_fk_2` FOREIGN KEY (`image_id`) REFERENCES `image` (`image_id`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_bin;
```

Vote Table:

```sql
CREATE TABLE `vote` (
 `id` int(11) NOT NULL,
 `image_id` int(11) NOT NULL,
 `voting` int(11) NOT NULL,
 PRIMARY KEY (`id`,`image_id`),
 KEY `vote_fk_1_idx` (`id`),
 KEY `vote_fk_2_idx` (`image_id`),
 CONSTRAINT `vote_fk_1` FOREIGN KEY (`id`) REFERENCES `user` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,
```

CONSTRAINT `vote_fk_2` FOREIGN KEY (`image_id`) REFERENCES `image` (`image_id`) ON DELETE CASCADE ON UPDATE CASCADE

) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_bin;

4.2 QUERIES
- In order to see automatic update or deletion insert is made to 3 different tables.

4.2.1 INSERT a new user to User Table

INSERT INTO `project`.`user` (`id`, `name`, `surname`, `username`, `password`, `birthdate`, `mail`) VALUES ('31', John, Doe', 'jd85', '2efbe9b66e399d441b98e085072115444g346h5', '1985-01-01', 'jdoe@gmail.com');

id	name	surname	username	password	birthdate	mail
11	Joshuah	Koepp	joshh15	d52fa4e947465c390276d6637bb251afbf5dc42e	2004-12-02	joshhman@hotmail.com
12	Ashleigh	Mitchell	mitchell30	287e3e04233b549025aee40251944976ac9f772f	1989-08-27	mitchell17@example.org
13	Okey	Weissnat	excalibur	7d870ba655b75134d6851e90b4e9afa3e01c42c5	1990-07-11	weissnatt77@gmail.com
14	Talia	Brown	princeses00	2ca28f2dfcf2107edc3458b67a9827b59ea1fe43	1993-09-03	modern.princeses@gmail...
15	Alvis	Douglas	douggy	c3b2d29b0c87ae0eeabcdeca29ffed7f4d5062bb	1984-07-15	douglas@example.org
16	Furman	Kuhn	alexx	78ec23bc9bb8ed7be123ff734f0d660604e07cbb	1995-11-18	kuhnn@yahoo.com
17	Isabella	Haag	haageen	82b733dc15100fca787943d0051cc2eea50b1e14	1993-11-03	haag558@gmail.com
18	Evangeline	Bernhard	senbernhard.45	4a5f017e2de38d7fbfc35f452a01a98959363388	1973-02-12	bernhardevageline@hot...
19	Meggie	Wisoky	meggy	f77f2f73ba1f0bb2872c790cdf1d660e1c4c62a6	1999-09-24	mgyy@example.net
20	Cara	Thiel	cara.thiel	c09ed72ca965aff1eaca275e3dfe9398cc2217f1	1983-02-11	cara.thiel@gmail.com
21	Adolph	Schuster	schuster.a22	6ff789ee2fa22c14247abf00a3d2f1d210988bc7	1996-07-24	schstradolph@example.net
22	Antonette	Kunde	antonette.pisa	51eb702842ad800b1c9bfa408f44f1a4b8ac9098	1980-03-08	antonette@example.org
23	Morgan	Stamm	stamm23	cc6f4722e8af2ed61580bfa3755d604d803ec0e4	2005-08-10	stammorgan@gmail.com
24	Harvey	Mertz	mertz.hrvy	3d21a85b41c3056f1bd0d3eb0a589f84d1e56f2f	1985-03-08	mertzzz@example.com
25	Alexie	Mitchell	alexiee.m78	c8a270ed1dee0811c21ae33022bf6d93f334d3b8	1978-05-22	alexie78@yahoo.com
26	Alvena	Jerde	jerde.alvena33	be49959c9bdc09e19f536516f1df6a5d2198a870	1999-11-02	jerdealvena@gmail.com
27	Tracy	Boehm	boehm.trcy	d72e528e0434a245a2f69a3497fc2ee8d9c6944c	1991-11-16	boehm28@example.com
28	Hassan	Reichert	reichert30	9f5b69c2606c134ce50a2efbe9b66e392187ee85	1989-07-03	hreichert@example.org
29	Leanna	Cruickshank	cruickss	4d087c6dae0a742b3574453942e57abb1ee0d3a1	2009-06-16	leannacrcks@hotmail.com
30	Alex	Hagenes	hagenees.alex	9d441b98e0850721182efb71acceac5e790fa7a2	2000-03-13	alex985@gmail.com
31						
NULL	NULL	NULL	NULL	NULL		NULL	NULL

INSERT a new image of that user to Image Table

INSERT INTO `project`.`image` (`image_id`, `image_title`, `image_location`, `image_category`, `id`, `date`, `nsfw`) VALUES ('46', John, 'Some location', 'social', '31', '2019-06-06', '0');

image_id	image_title	image_location	image_category	id ▲	date	nsfw
26	Hatter	6137 Gottlieb Lodge	fashion	8	2016-03-31	0
27	Court	760 Serena Skyway	sport	30	2018-06-02	1
28	Dont Look	4450 Spencer Pike Apt. 180	entertainment	10	2017-11-17	1
29	Irony	12727 Effertz Plains	entertainment	8	2016-04-18	0
30	Family	69219 Hintz Brook Apt. 596	social	22	2017-09-03	0
31	Holiday	585 Mills Key Suite 738	social	5	2018-07-01	0
32	Articles	325 Kertzmann Glens Suite 253	social	6	2016-12-15	0
33	Tomorrow	8868 Monty Mews Apt. 776	fashion	12	2018-08-16	0
34	Blouse	91888 Tomasa Lodge Apt. 647	fashion	21	2017-05-17	0
35	Skor	9654 Patience Divide Suite 448	sport	1	2015-12-26	0
36	Skater	79822 Dibbert Circle	sport	7	2018-04-15	1
37	Mini or Tiny	7385 Vivian Mountain	fashion	18	2018-07-08	0
38	Beaches	6203 Hardy Hill	social	2	2017-08-11	0
39	Sandy	21229 Alivia Path Suite 871	social	19	2017-07-27	1
40	Glasses	6137 Gottlieb Lodge	fashion	8	2018-03-30	0
41	Flies	760 Serena Skyway	sport	30	2016-02-04	1
42	There she goes	4450 Spencer Pike Apt. 180	social	10	2015-09-16	0
43	Trend	12727 Effertz Plains	sport	9	2017-10-17	0
44	Oh Honey	69219 Hintz Brook Apt. 596	social	22	2018-05-27	0
45	Trick or Treat!	585 Mills Key Suite 738	social	5	2019-02-03	0
46	███████		social	31	2019-06-06	0

INSERT a new votes to Vote Table

INSERT INTO `project`.`vote` (`id`, `image_id`, `voting`) VALUES ('31', '1', '5');

INSERT INTO `project`.`vote` (`id`, `image_id`, `voting`) VALUES ('31', '35', '4');

id	image_id	voting
26	36	4
26	42	4
27	6	5
27	9	4
27	14	5
27	37	1
28	1	4
28	11	2
28	23	1
28	35	2
28	45	4
29	19	4
29	28	5
29	37	3
30	1	3
30	2	5
30	16	5
30	38	5
30	45	3
31	1	5
31	35	4
NULL	NULL	NULL

4.2.2 UPDATE existing user in User Table (cascading effects on other tables)

UPDATE `project`.`user` SET `id` = '32' WHERE (`id` = '31');

When updating id number of user table, it will updated in other tables automatically.

id	name	surname	username	password	birthdate	mail
11	Joshuah	Koepp	joshh15	d52fa4e947465c390276d6637bb251afbf5dc42e	2004-12-02	joshhman@hotmail.com
12	Ashleigh	Mitchell	mitchell30	287e3e04233b549025aee40251944976ac9f772f	1989-08-27	mitchell17@example.org
13	Okey	Weissnat	excalibur	7d870ba655b75134d6851e90b4e9afa3e01c42c5	1990-07-11	weissnatt77@gmail.com
14	Tala	Brown	princeses00	2ca28f2dfcf2107edc3458b67a9827b59ea1fe43	1993-09-03	modern.princeses@gmail...
15	Alvis	Douglas	douggy	c3b2d29b0c87ae0eeabcdeca29ffed7f4d5062bb	1984-07-15	douglas@example.org
16	Furman	Kuhn	alexx	78ec23bc9bb8ed7be123ff734f0d660604e07cbb	1995-11-18	kuhnn@yahoo.com
17	Isabella	Haag	haageen	82b733dc15100fca787943d0051cc2eea50b1e14	1993-11-03	haag558@gmail.com
18	Evangeline	Bernhard	senbernhard.45	4a5f017e2de38d7fbfc35f452a01a98959363388	1973-02-12	bernhardevageline@hot...
19	Meggie	Wisoky	meggy	f77f2f73ba1f0bb2872c790cdf1d660e1c4c62a6	1999-09-24	mgyy@example.net
20	Cara	Thiel	cara.thiel	c09ed72ca965aff1eaca275e3dfe9398cc2217f1	1983-02-11	cara.thiel@gmail.com
21	Adolph	Schuster	schuster.a22	6ff789ee2fa22c14247abf00a3d2f1d210988bc7	1996-07-24	schstradolph@example.net
22	Antonette	Kunde	antonette.pisa	51eb702842ad800b1c9bfa408f44f1a4b8ac9098	1980-03-08	antonette@example.org
23	Morgan	Stamm	stamm23	cc6f4722e8af2ed61580bfa3755d604d803ec0e4	2005-08-10	stammorgan@gmail.com
24	Harvey	Mertz	mertz.hrvy	3d21a85b41c3056f1bd0d3eb0a589f84d1e56f2f	1985-03-08	mertzzz@example.com
25	Alexie	Mitchell	alexiee.m78	c8a270ed1dee0811c21ae33022bf6d93f334d3b8	1978-05-22	alexie78@yahoo.com
26	Alvena	Jerde	jerde.alvena33	be49959c9bdc09e19f536516f1df6a5d2198a870	1999-11-02	jerdealvena@gmail.com
27	Tracy	Boehm	boehm.trcy	d72e528e0434a245a2f69a3497fc2ee8d9c6944c	1991-11-16	boehm28@example.com
28	Hassan	Reichert	reichert30	9f5b69c2606c134ce50a2efbe9b66e392187ee85	1989-07-03	hreichert@example.org
29	Leanna	Cruickshank	cruickss	4d087c6dae0a742b3574453942e57abb1ee0d3a1	2009-06-16	leannacrcks@hotmail.com
30	Alex	Hagenes	hagenees.alex	9d441b98e0850721182efb71acceac5e790fa7a2	2000-03-13	alex985@gmail.com
32						

image_id	image_title	image_location	image_category	id	date	nsfw
26	Hatter	6137 Gottlieb Lodge	fashion	8	2016-03-31	0
27	Court	760 Serena Skyway	sport	30	2018-06-02	1
28	Dont Look	4450 Spencer Pike Apt. 180	entertainment	10	2017-11-17	1
29	Irony	12727 Effertz Plains	entertainment	8	2016-04-18	0
30	Family	69219 Hintz Brook Apt. 596	social	22	2017-09-03	0
31	Holiday	585 Mills Key Suite 738	social	5	2018-07-01	0
32	Articles	325 Kertzmann Glens Suite 253	social	6	2016-12-15	0
33	Tomorrow	8868 Monty Mews Apt. 776	fashion	12	2018-08-16	0
34	Blouse	91888 Tomasa Lodge Apt. 647	fashion	21	2017-05-17	0
35	Skor	9654 Patience Divide Suite 448	sport	1	2015-12-26	0
36	Skater	79822 Dibbert Circle	sport	7	2018-04-15	1
37	Mini or Tiny	7385 Vivian Mountain	fashion	18	2018-07-08	0
38	Beaches	6203 Hardy Hill	social	2	2017-08-11	0
39	Sandy	21229 Alivia Path Suite 871	social	19	2017-07-27	1
40	Glasses	6137 Gottlieb Lodge	fashion	8	2018-03-30	0
41	Flies	760 Serena Skyway	sport	30	2016-02-04	1
42	There she goes	4450 Spencer Pike Apt. 180	social	10	2015-09-16	0
43	Trend	12727 Effertz Plains	sport	9	2017-10-17	0
44	Oh Honey	69219 Hintz Brook Apt. 596	social	22	2018-05-27	0
45	Trick or Treat!	585 Mills Key Suite 738	social	5	2019-02-03	0
46			social	32	2019-06-06	0

id	image_id	voting
26	36	4
26	42	4
27	6	5
27	9	4
27	14	5
27	37	1
28	1	4
28	11	2
28	23	1
28	35	2
28	45	4
29	19	4
29	28	5
29	37	3
30	1	3
30	2	5
30	16	5
30	38	5
30	45	3
32	1	5
32	35	4

4.2.3 DELETE existing user in User Table (cascading effects on other tables)

DELETE FROM `project`.`user` WHERE (`id` = '32');

When a user deleted, his/her uploaded images, galleries, comments and votes are also deleted automatically.

In this case when it is deleted, tables are back to original forms so screenshots are not needed.

4.2.4 DERIVED ATTRIBUTE

Age of the users can be calculated from birthdates

Age (derived attribute):

SELECT id, name, surname, timestampdiff(year, birthdate, curdate()) as age from user order by age;

id	name	surname	age
29	Leanna	Cruickshank	9
3	Deja	Hartmann	13
23	Morgan	Stamm	13
11	Joshuah	Koepp	14
4	Jamison	Pacocha	18
9	Virginie	Kuhlman	19
19	Meggie	Wisoky	19
26	Alvena	Jerde	19
30	Alex	Hagenes	19
10	Marlen	Reynolds	22
21	Adolph	Schuster	22
6	Shaina	DuBuque	23
16	Furman	Kuhn	23
14	Talia	Brown	25
17	Isabella	Haag	25
27	Tracy	Boehm	27
13	Okey	Weissnat	28
5	Larissa	Volkman	29
12	Ashleigh	Mitchell	29
28	Hassan	Reichert	29
1	Henriette	Swaniawski	30
7	Arvilla	Johnson	31
2	Alexan...	Graham	34
15	Alvis	Douglas	34
24	Harvey	Mertz	34
20	Cara	Thiel	36
22	Antonette	Kunde	39
25	Alexie	Mitchell	41
8	Alene	Boyle	43
18	Evange...	Bernhard	46

From here it can be computed how man users are under 18 in order to keep an statistical data:

Select count(*) as under_18 from (SELECT name, surname, timestampdiff(year, birthdate, curdate()) as age from user order by age) as t where age<18;

under_18
4

4.2.5 Aggregate Query

1. In order to find the average age of people who uses application, following sql can be written:

select avg(t.age) as average_age from (select timestampdiff(year, birthdate, curdate()) as age from user order by age) as t;

average_age
26.4333

2. To count the number of images uploaded by users and sort the users who uploaded more images:

SELECT COUNT(*) AS image_count, user.id, user.name, user.surname FROM image LEFT JOIN user ON image.id=user.id GROUP BY image.id, user.name ORDER BY count DESC;

image_count	id	name	surname
4	8	Alene	Boyle
3	2	Alexandria	Graham
3	5	Larissa	Volkman
2	17	Isabella	Haag
2	25	Alexie	Mitchell
2	10	Marlen	Reynolds
2	19	Meggie	Wisoky
2	13	Okey	Weissnat
2	22	Antonette	Kunde
2	30	Alex	Hagenes
2	24	Harvey	Mertz
1	1	Henriette	Swania...
1	9	Virginie	Kuhlman
1	18	Evangeline	Bernhard
1	26	Alvena	Jerde
1	3	Deja	Hartmann
1	11	Joshuah	Koepp
1	27	Tracy	Boehm
1	4	Jamison	Pacocha
1	12	Ashleigh	Mitchell
1	20	Cara	Thiel
1	28	Hassan	Reichert
1	21	Adolph	Schuster
1	29	Leanna	Cruicksh...
1	6	Shaina	DuBuque
1	14	Talia	Brown
1	7	Arvilla	Johnson
1	15	Alvis	Douglas
1	23	Morgan	Stamm
1	16	Furman	Kuhn

4.2.6 Nested Query

To find the users who comment on images that have sensitive content:

select id, name, surname, timestampdiff(year, birthdate, curdate()) as age, t.image_id, t.nsfw from user,

(SELECT image.image_id, image.nsfw, comment.id as commentor_id FROM image, comment

where image.image_id=comment.image_id and nsfw=1) as t

where user.id=t.commentor_id order by id asc;

id	name	surname	age	image_id	nsfw
7	Arvilla	Johnson	31	27	1
10	Marlen	Reynolds	22	7	1
13	Okey	Weissnat	28	39	1
16	Furman	Kuhn	23	10	1
18	Evangeline	Bernhard	46	10	1
20	Cara	Thiel	36	20	1
26	Alvena	Jerde	19	20	1
26	Alvena	Jerde	19	18	1

4.2.6 View

Create a view to have information about top 5 images which have the highest votes:

create view highfly as select image_id, sum(voting) as highestvote from vote group by image_id order by highestvote desc limit 5;

image_id	highestvote
11	27
1	18
9	17
18	16
6	15

By using this view, top 5 image categories can be determined:

select highfly.image_id, highfly.highestvote, image.image_category from highfly, image where highfly.image_id = image.image_id;

image_id	highestvote	image_category
11	27	sport
1	18	social
9	17	fashion
18	16	social
6	15	entertainment

4.2.7 Error Handling and Trigger

The main things that handled are as below:

- All operation must provide integrity constraints
- Domain Constraints
- Key Constraint
- Referential Integrity Constraint
- Entity Constraint

Following trigger can control the birthdate of the users, if someone tries to insert or update a future date then application record it as if the user's birthdate was today.

```
CREATE DEFINER=`root`@`localhost` TRIGGER `user_BEFORE_INSERT` BEFORE
INSERT ON `user` FOR EACH ROW BEGIN
IF now()<new.birthdate then set new.birthdate=now();
end if;
END
```

```
CREATE DEFINER=`root`@`localhost` TRIGGER `user_BEFORE_UPDATE` BEFORE
UPDATE ON `user` FOR EACH ROW BEGIN
IF now()<new.birthdate then set new.birthdate=now();
end if;
END
```