structuralization in database systems Ondrej Špánik

Exploratory data analysis and

Systems used

- Laravel (PHP 7.x)
- Bootstrap
- findacat.eu web hosting
- MySQL
- Docker











Tables

- Users (9 columns)
- Cats (36 columns)
- Cat_metadata (6 columns)
- Ems (7 columns)
- Breeds (6 columns)

Pages

- Search
- Test Mating
- Birthdays
- Register Cat
- Cat Profile
- Cat Tree for 1..5 generations

- Login
- Register
- Backups

• 0..2s response

Relationships

- Cat has 0..1 father cat and 0..1 mother cat
- (Cat has 0..n metadata)
- Cat has 0..1 breed
- Cat has 0..1 ems
- Cat has 0..n children
- User has to be admin to register a cat
- User has to be admin to access backups

Pedigree trees; Inbreeding

- Test mating by breed and cat name
- Inbreeding algorithm (calculateForCode):
 - The function iterates over ancestors to find pairs of different codes leading to the same ancestor, these pairs represent potential inbreeding paths.
 - Afterwards the function checks if there are any intermediate ancestors common to both paths for each pair of codes leading to the same ancestor. If not, it considers it as an inbreeding path.

Pedigree trees; Inbreeding

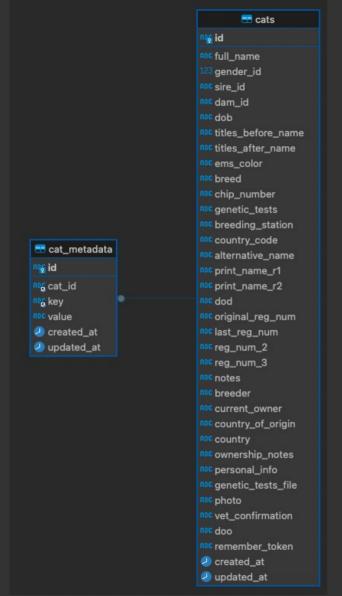
- Calculation proceeds with the inbreeding coefficient based on the length of the codes and the inbreeding coefficient of the common ancestor: 2(-(length1 + length2 - 1)) * (1 - FA) where FA is the inbreeding coefficient of the common ancestor.
- The function caches the calculated inbreeding coefficient for each common ancestor to avoid redundant calculations.
- Total inbreeding is calculated by summing up products of inbreeding coefficients and the number of paths, this coefficient is then displayed on the page in percentage form.

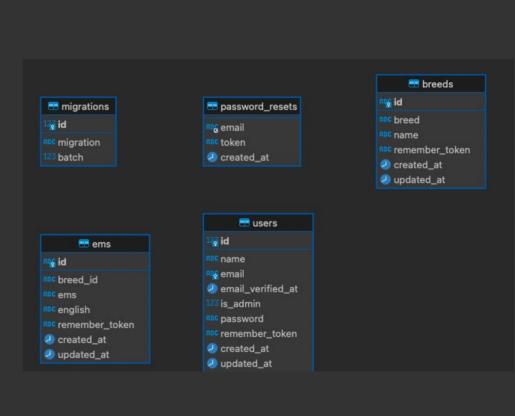
Additional data handling

- Ems filled in profile
- Breed filled in profile
- Approximate, exact, substring search
- Cats, EMS, Breed CSV Import and Export
- Multilingual site (Slovak, English)
- Search pagination

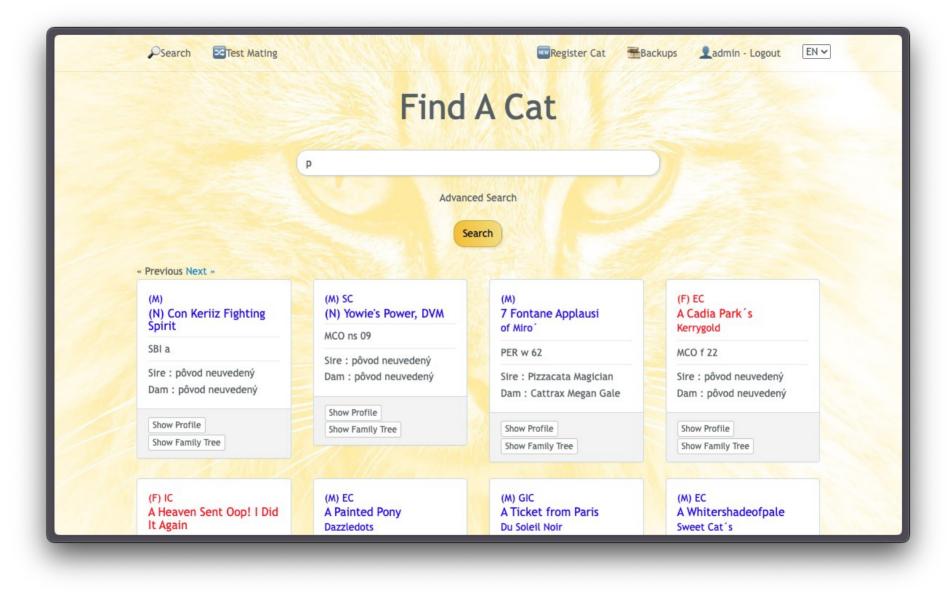
Support

- Webhosting with MySQL and PHP 7.x
- Docker image (all-in-one)
- User & Technical Documentation













Find A Cat



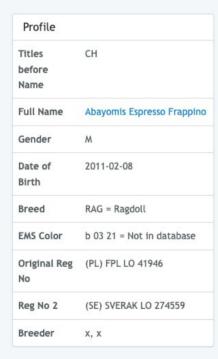


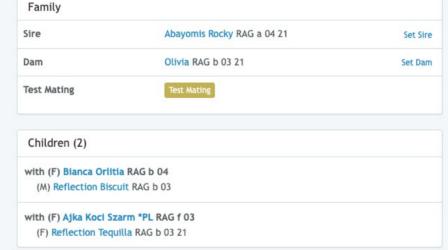


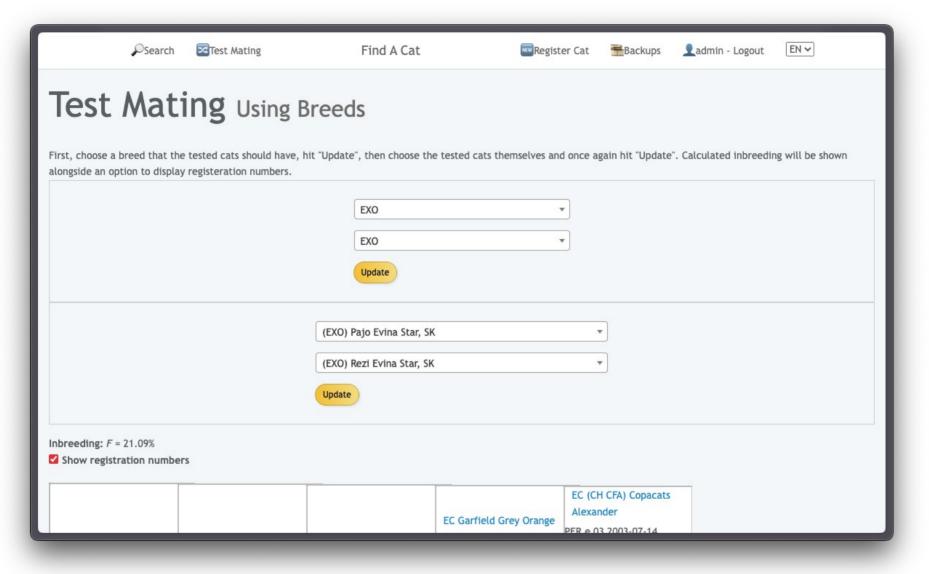


Abayomis Espresso Frappino Profile









	GIC Fabián z Kopečku, CZ EXO a 01 62 2003-08-06 (SK) SZCH LO 15/2004/EXO (CZ) ČSCH LO 323/3/EXO	CH Mr. Misha G z Tazu, CZ PER a 03 (CZ) ČSCH LO 336/0/PER	EC Garfield Grey Orange Blue PER a 02 62 2003-07-14 (CZ) ČPKK 797/97/PER	EC (CH CFA) Copacats Alexander PER e 03 2003-07-14 PKR-14044/PER IC Balou Orange Blue PER g 01 62 2003-07-14 (PL) PKR-13052/PER
Sire:			CH Humoreska Etida, PL EXO f 2004-01-09 (CZ) ČSCH LO 52/98/EXO	EC Hammat TSX av Fagervoll EXO d 03 22 2003-08-11 (PL) PKR-0071/EXO GIC Bajka od Elizy PER f 03 2004-01-09 (PL) PKR-13020/PER
		Hanah Lady Bijou, CZ EXO g 03 (CZ) ČSCH LO 95/1/EXO	IC Xenius GO, CZ EXO as 22 62 (CZ) ČSCH LO 8/99/EXO	EC Zenzero Zenzero EXO ns 22 62 2003-08-12 ČPKK 1/97/EXO CH Chantal Go PER gs ČPKK 578/94/PER
			GIC Sharon Pearl Cat*PL PER f 03 2003-12-05 ČPKK 2020/97/PER SHKRP LO 2852	CH Fajny Figielek PER d 23 2003-12-05 PKR - 12922/PKR IC Traisy Isi z Druzyny Timura PER g 02 2003-12-05 PKR - 8116/PER
Pajo Evina Star, SK				EC/CFA/ Alexander

EXO e 02 2009-08-14 (SK) SZCH LO 143/2009/EXO		-12	EC Garfield Grey Orange Blue, PL, DM PER a 02 62 2003-10-01 (CZ) ČPKK 797/97/PER	Copacats, DM PER e 03 2003-10-01 (PL) PKR-14044/PER IC Balou Orange Blue PER g 01 62 2003-07-14 (PL) PKR-13052/PER	
	Aries Evina Star, SK		EC Zecca la Renta Camry PER f 2004-06-03 (CZ) ČSCH LO 111/0/PER,(PL) SHKRP LO 1480	PL PER n 03 2004-06-03 PKR - 12823 EC Sunrise Star red Camry* PL PER d 2004-06-03	
	PER d 02 62 2004-04-12 (SK) SZCH LO 6146/2004/PER			PKR - 12968/PER EC/CFA/ Alexander	
		IC Opera G z Tazu, CZ PER fo 2 62 2004-06-03 (SK) SZCH LO 6079/2003/PER (CZ) ČSCH LO 727/2/PER	EC Garfield Grey Orange Blue, PL, DM PER a 02 62 2003-10-01 (CZ) ČPKK 797/97/PER	Copacats, DM PER e 03 2003-10-01 (PL) PKR-14044/PER	
				IC Balou Orange Blue PER g 01 62 2003-07-14 (PL) PKR-13052/PER	
				Belzebub Lady Bijou, CZ PER n 2003-12-05 (CZ) ČSCH LO 373/99/PER	
				IC Dulcinea G Lady Bijou, CZ	
				PER f 03 2004-06-03 (CZ) ČSCH LO 335/0/PER	
				EC (CH CFA) Copacats	

	GIC Fabián z Kopečku, CZ EXO a 01 62 2003-08-06 (SK) SZCH LO 15/2004/EXO (CZ) ČSCH LO 323/3/EXO	CH Mr. Misha G z Tazu, CZ PER a 03 (CZ) ČSCH LO 336/0/PER	EC Garfield Grey Orange Blue PER a 02 62 2003-07-14 (CZ) ČPKK 797/97/PER	Alexander PER e 03 2003-07-14 PKR-14044/PER IC Balou Orange Blue PER g 01 62 2003-07-14 (PL) PKR-13052/PER	
			CH Humoreska Etida, PL EXO f 2004-01-09 (CZ) ČSCH LO 52/98/EXO	EC Hammat TSX av Fagervoll EXO d 03 22 2003-08-11 (PL) PKR-0071/EXO GIC Bajka od Elizy PER f 03 2004-01-09 (PL) PKR-13020/PER	
		Hanah Lady Bijou, CZ EXO g 03 (CZ) ČSCH LO 95/1/EXO	IC Xenius GO, CZ EXO as 22 62 (CZ) ČSCH LO 8/99/EXO	EC Zenzero Zenzero EXO ns 22 62 2003-08-12 ČPKK 1/97/EXO CH Chantal Go PER gs ČPKK 578/94/PER	
Dam:			GIC Sharon Pearl Cat*PL PER f 03 2003-12-05 ČPKK 2020/97/PER SHKRP LO 2852	CH Fajny Figielek PER d 23 2003-12-05 PKR - 12922/PKR IC Traisy Isi z Druzyny Timura PER g 02 2003-12-05 PKR - 8116/PER	
Rezi Evina Star, SK EXO n 02 2009-08-18 (SK) SZCH LO 145/2009/EXO			EC Garfield Grey Orange	EC/CFA/ Alexander Copacats, DM	

EXO n 02 2009-08-18 (SK) SZCH LO 145/2009/EXO		EC Damián G Lady Bijou, CZ	EC Garfield Grey Orange Blue, PL, DM PER a 02 62 2003-10-01 (CZ) ČPKK 797/97/PER	Copacats, DM PER e 03 2003-10-01 (PL) PKR-14044/PER IC Balou Orange Blue PER g 01 62 2003-07-14 (PL) PKR-13052/PER	
CH Aurora Evina Star, SK PER f 03 2004-04-12 (SK) SZCH LO 6148/2004/PER	PER d 03 2004-06-03 (CZ) ČSCH LO 334/0/PER	EC Zecca la Renta Camry PER f 2004-06-03 (CZ) ČSCH LO 111/0/PER,(PL) SHKRP LO 1480	PER n 03 2004-06-03 PKR - 12823 EC Sunrise Star red Camry* PL PER d 2004-06-03 PKR - 12968/PER		
	IC Opera G z Tazu, CZ PER fo 2 62 2004-06-03	EC Garfield Grey Orange Blue, PL, DM PER a 02 62 2003-10-01 (CZ) ČPKK 797/97/PER	EC/CFA/ Alexander Copacats, DM PER e 03 2003-10-01 (PL) PKR-14044/PER IC Balou Orange Blue PER g 01 62 2003-07-14 (PL) PKR-13052/PER		
	(S	(SK) SZCH LO 6079/2003/PER (CZ) ČSCH LO 727/2/PER	CH Inéz Lady Bijou, CZ PER f 02 62 2004-06-03 (CZ) ČSCH LO 682/1/PER	Belzebub Lady Bijou, CZ PER n 2003-12-05 (CZ) ČSCH LO 373/99/PER IC Dulcinea G Lady Bijou, CZ PER f 03 2004-06-03 (CZ) ČSCH LO 335/0/PER	