
Gamification and Fake News: A Thriller about the Challenges of Developing an In-house Quiz App

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UK Data Archive

UK Data Service

University of Essex

IASSIST 2018: Once Upon A Data Point:
Sustaining Our Data Storytellers

30 May 2018

UK Data Service



University of Essex



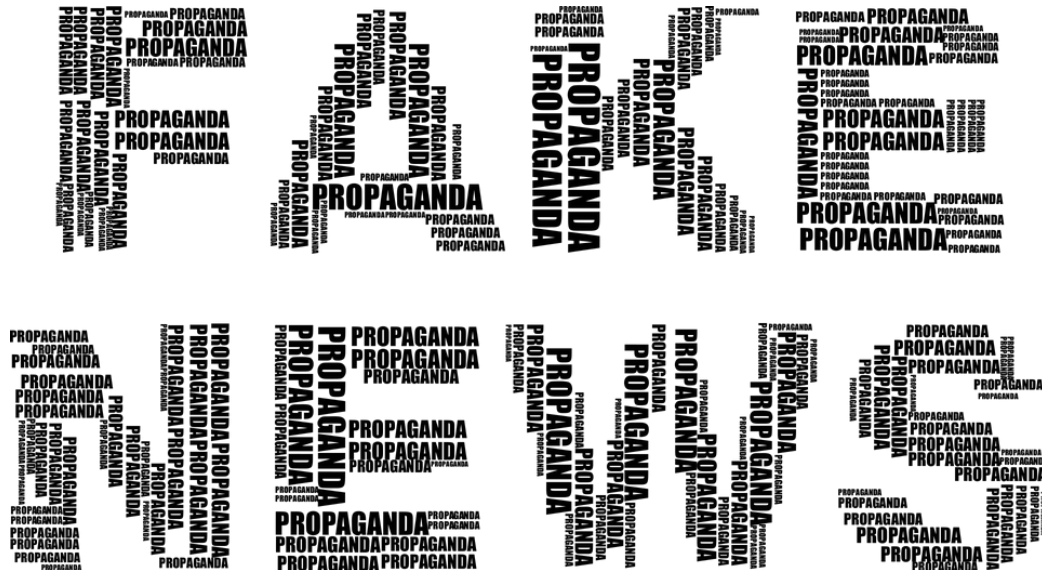
Where did it all start?

- [#EULifeAppChallenge](#)
developer contest
- Design by *Tomek Kwiatkowski*,
a young developer from Poland
- Uses *openly* available data* and
demonstrates stats are fun
- Targeted at *14-18 year olds*



Why did it all start?

- Majority' of Remainers switch to backing hard Brexit
- Numbers of smokers rocketed during 2017
- Sadiq Khan gets reprimanded by the Queen
- Pizzagate conspiracy theory




Why did it all start?

- What better way to combat Fake News than through *universal truths*?
- Why an app?
 - *Purposed-focused*
 - *Respectable security*
 - *Offline access*
 - *Efficient*
 - *Fun*

The BackEnd

UKDS Data Quiz Project

 **Cristina Magder** System Admin


APP CONTENT

APP QUIZZES

HELP




Home > Quiz

NEW QUIZ Showing 1 - 40 of 40 quizzes




Pets

Check your knowledge




  

QUESTIONS COUNT	FEATURED	MODIFICATION TIME
15	No	2017-09-21 21:40:48 Cristina Magder



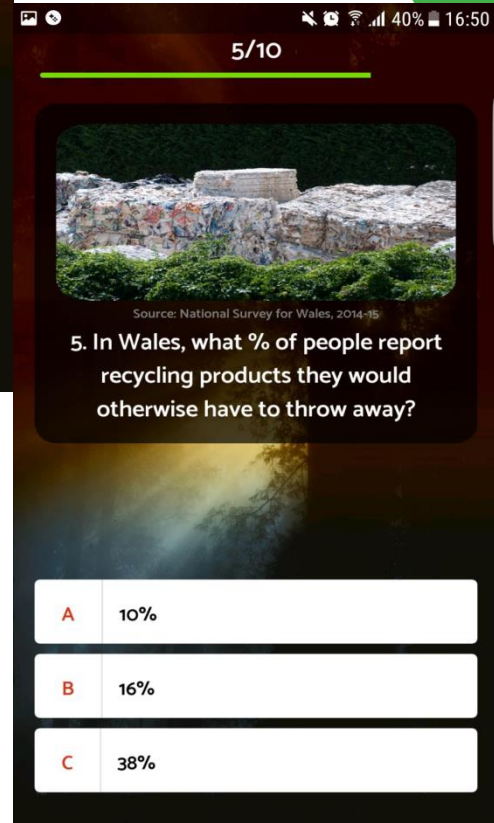
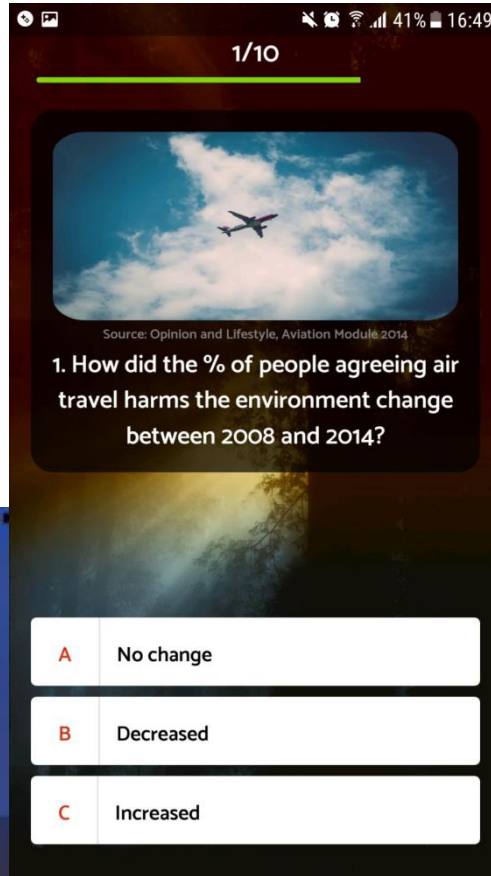
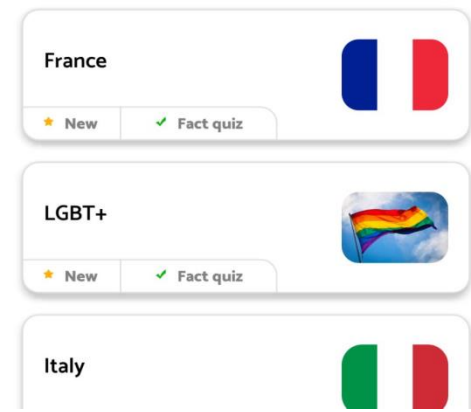
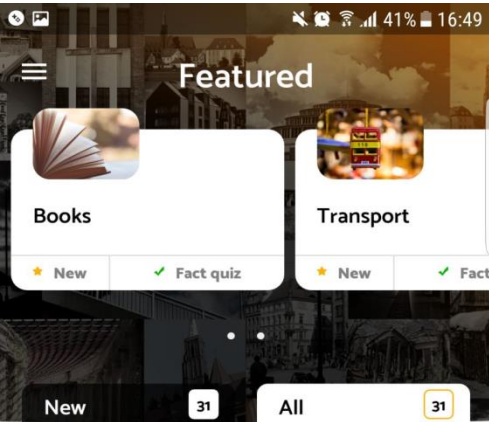
Disability Awareness

Check your knowledge

QUESTIONS COUNT	FEATURED	MODIFICATION TIME
15	No	2017-12-05 12:55:18

The FrontEnd












Divide et Impera

- *Creative Power*
- *Tech Power*
- *Stats Power*

Version Control

- *Track changes*
- *Single source of Truth*
- *Readily available*
- *Branching*

Name	Date modified	Type	Size
 Title V1.docx	15/05/2018 11:33	Microsoft Word Document	15 KB
 Title V2.docx	15/05/2018 11:34	Microsoft Word Document	15 KB
 Title V3.docx	15/05/2018 11:34	Microsoft Word Document	20 KB
 Title V4.docx	15/05/2018 11:35	Microsoft Word Document	49 KB
 Title V5.docx	15/05/2018 11:36	Microsoft Word Document	58 KB
 Title V6.docx	15/05/2018 11:36	Microsoft Word Document	53 KB
 Title V7.docx	15/05/2018 11:40	Microsoft Word Document	328 KB



Version Control



```
UKDS/UKDS/ViewControllers/ResultViewController.swift MODIFIED Side-by-side diff View file Comment ...

109 109     let positionX = UIScreen.main.bounds.width / 2
110 110     let positionY = CGFloat(200)
111 111     print(positionX, positionY)
112 - let startAngle = CGFloat(M_PI * 1.5)
112 + let startAngle = CGFloat(Double.pi * 1.5)
113 113
114 114     // bg circle
115 - let circlePathBg = UIBezierPath(arcCenter: CGPoint(x: positionX, y: positionY), radius: CGFloat(self.circleRadius!), startAngle: CGFloat(0), endAngle:CGFloat(M_PI * 2), clockwise: true)
115 + let circlePathBg = UIBezierPath(arcCenter: CGPoint(x: positionX, y: positionY), radius: CGFloat(self.circleRadius!), startAngle: CGFloat(0), endAngle:CGFloat(Double.pi * 2), clockwise: true)
116 116     let shapelayerBg = CAShapeLayer()
117 117     shapelayerBg.path = circlePathBg.cgPath
118 118     shapelayerBg.fillColor = UIColor(red: 0, green: 0, blue: 0, alpha: 0.75).CGColor

148 148     let positionX = UIScreen.main.bounds.width / 2
149 149     let positionY = CGFloat(200)
150 150
151 - let startAngle = CGFloat(M_PI * 1.5)
151 + let startAngle = CGFloat(Double.pi * 1.5)
152 152
153 153     let circlePathStart = UIBezierPath(arcCenter: CGPoint(x: positionX, y: positionY), radius: CGFloat(self.circleRadius!), startAngle: CGFloat(startAngle), endAngle:CGFloat(self.getAngle(currentPercent)), c
154 154     self.percentLayer!.path = circlePathStart.cgPath

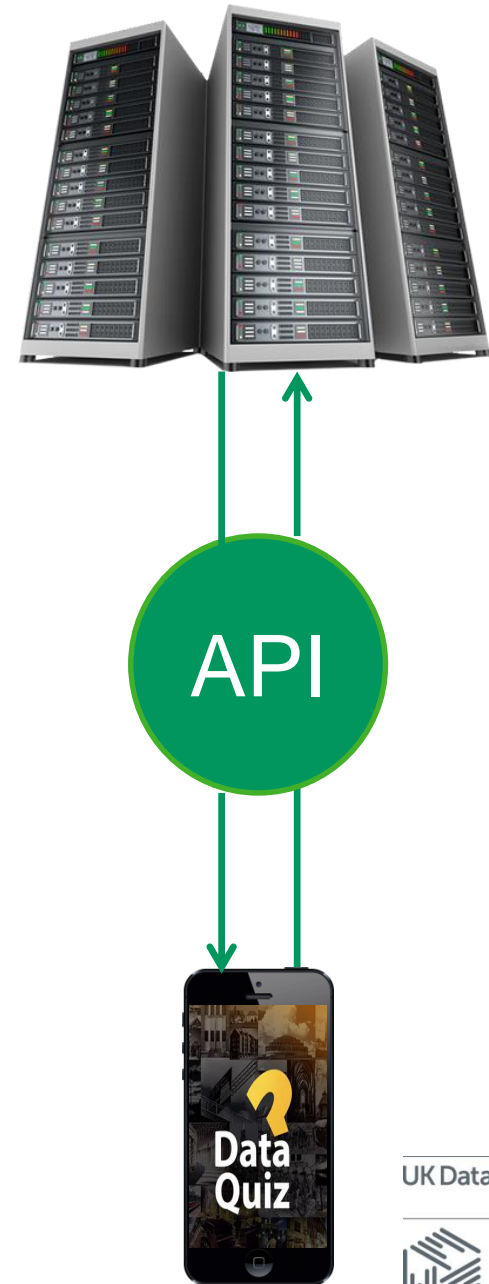
194 194         angle += 0.02
195 195     }
196 196
197 - return M_PI * angle
197 + return Double.pi * angle
198 198     }
199 199
200 200
```



API

- *API* (acronym for Application Programming Interface) is “a set of functions and procedures that allow the creation of applications which access the features or data of an operating system, application, or other service”

OED Online. Oxford University Press, March 2018. Web. 7 May 2018.



UK Data Service

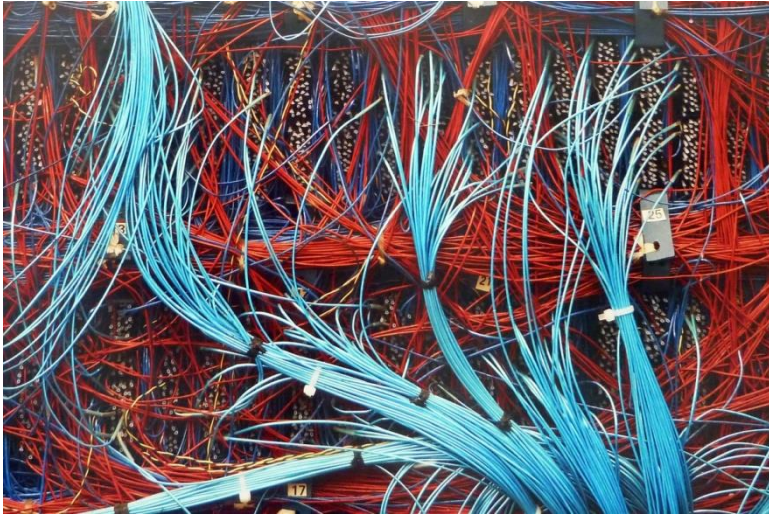


API Hurdles

- Original API worked well but lacked suitable endpoints
 - Either provides too much data (Over fetching) or too little data (Under fetching)
 - *Over Fetching* wastes data usage and space
 - *Under Fetching* wastes time, as more API requests have to be sent



What we've got:



What we want:



RESTful API

A *RESTful API* is an application program interface (API) that uses HTTP requests to *GET, PUT, POST* and *DELETE* data.

A RESTful API breaks down a transaction to create a series of small modules.

- *Cleaner*
- *Easier*
- *Ease for synchronization*

Databases

- **Core tool** of the API
- Database originally in **MySQL**
 - was based on a previous project (part of something bigger)
 - a little rough around the edges
- Remade to work with **MsSQL** (Microsoft SQL Server)
 - fresh structure
 - standardized formats, fields and names
 - formalized table relationships



Before

```
ukds.users_avatar
id : int(11)
# user_id : int(11)
@ filename : varchar(255)
```

```
ukds.teacher_history
id : int(11)
# quiz_id : int(11)
@ teacher_id : varchar(60)
@ session_symbol : varchar(8)
@ json_data : text
# is_class : tinyint(1)
@ date_created : datetime
```

```
ukds.categories
id : int(11)
# ordera : int(11)
# visible : tinyint(4)
# user_id : int(11)
@ title : varchar(255)
@ icon : varchar(255)
@ date_modify : datetime
@ shop_guid : varchar(128)
```

```
ukds.classes_entry
id : int(11)
# classes_id : int(11)
@ email : varchar(128)
```

```
ukds.stats_quiz_questions
id : int(11)
# stats_quiz_id : int(11)
# question_id : int(11)
# is_correct : tinyint(4)
```

```
ukds.questions_removed
id : int(11)
# quizzes_id : int(11)
```

```
ukds.stats_quiz
id : int(11)
# quiz_id : int(11)
# stats_quiz_users_id : int(11)
# is_starting : tinyint(4)
# is_ending : tinyint(4)
# teacher_mode : tinyint(4)
# teacher_history_id : int(11)
@ date_created : datetime
```

```
ukds.stats_quiz_users
id : int(11)
@ email : varchar(255)
```

```
ukds.daily_inspiration
id : int(11)
@ content : text
```

```
ukds.notes
id : int(11)
# quiz_id : int(11)
```

```
ukds.teachers
id : int(11)
# school_id : int(11)
@ teacher_email : varchar(127)
```

```
ukds.mentors
id : int(11)
# hackathon_id : int(11)
@ mentor_email : varchar(255)
```

```
ukds.schedule
id : int(11)
# user_id : int(11)
@ date : datetime
@ event : text
```

```
ukds.questions
id : int(11)
# quizzes_id : int(11)
# user_id_modified : int(11)
# ordera : int(11)
# visible : tinyint(4)
@ type : varchar(255)
@ question : text
@ question_image1 : varchar(255)
@ explanation : text
@ answer1 : varchar(255)
@ answer2 : varchar(255)
@ answer3 : varchar(255)
@ answer_image1 : varchar(255)
@ answer_image2 : varchar(255)
@ answer_image3 : varchar(255)
@ answer_image4 : varchar(255)
@ multi_answers : text
# answer : int(11)
@ text_answer : text
@ comments : text
@ rate1 : varchar(255)
@ rate2 : varchar(255)
@ rate3 : varchar(255)
@ rate4 : varchar(255)
@ date_modified : datetime
```

```
ukds.answers
id : int(11)
# user_id : int(11)
@ user_nick : varchar(255)
@ quiz_name : varchar(255)
@ quiz_html_answers : text
@ date_created : datetime
```

```
ukds.classes
id : int(11)
# teacher_id : int(11)
@ class_name : varchar(127)
```

```
ukds.dynamic_pages
id : int(11)
# user_id : int(11)
@ name : varchar(255)
@ title : varchar(255)
@ text : text
@ deadline : datetime
```

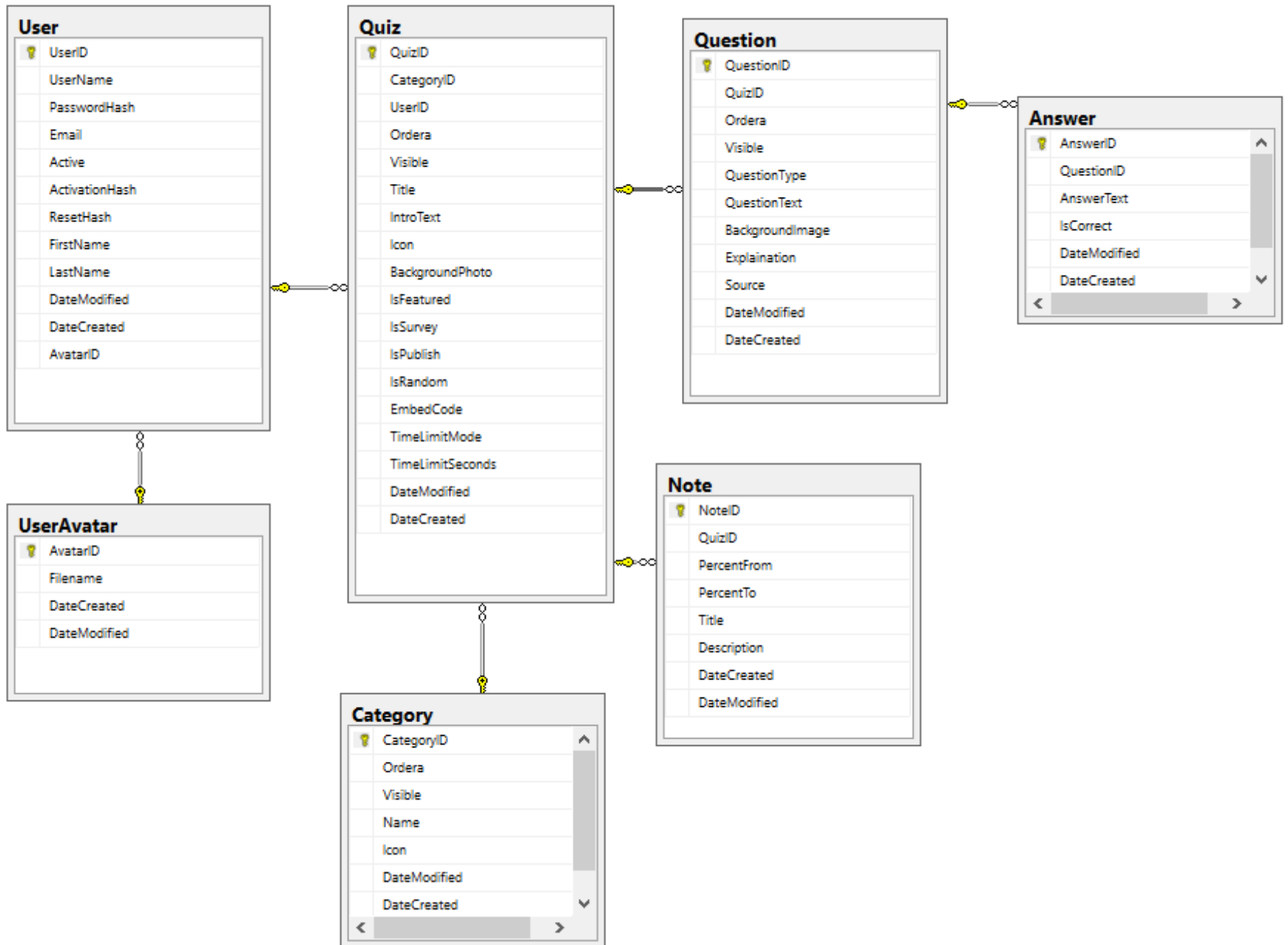
```
ukds.quizes
id : int(11)
# categories_id : int(11)
# user_id : int(11)
# user_id_modified : int(11)
# ordera : int(11)
# visible : tinyint(4)
@ title : varchar(255)
@ intro : text
@ type : varchar(255)
@ icon : varchar(255)
@ background_photo : varchar(255)
# is_featured : int(11)
# is_survey : int(11)
# is_publish : int(11)
# is_random : int(11)
@ date_modify : datetime
@ embed_code : varchar(20)
# time_limit_mode : tinyint(4)
# time_limit_secs : int(11)
# questions_count : int(11)
@ shop_guid : varchar(128)
@ link_shop_guid : varchar(128)
```

```
ukds.users
user_id : int(11)
user_name : varchar(64)
@ user_password_hash : varchar(255)
user_email : varchar(64)
# user_active : tinyint(1)
@ user_activation_hash : varchar(40)
@ user_password_reset_hash : char(40)
# user_password_reset_timestamp : bigint(20)
@ user_rememberme_token : varchar(64)
# user_failed_logins : tinyint(1)
# user_last_failed_login : int(10)
@ user_registration_datetime : datetime
@ user_registration_ip : varchar(39)
@ user_who_is : varchar(20)
@ user_nickname : varchar(255)
@ user_surname : varchar(128)
@ user_note : text
@ user_contact_email : varchar(128)
@ user_contact_phone : varchar(128)
@ parents_contact_email : varchar(128)
@ parents_contact_phone : varchar(128)
```

```
ukds.persons
id : int(11)
@ person_id : varchar(128)
@ name : varchar(255)
@ age : varchar(255)
@ gender : varchar(255)
@ details : text
@ interest : text
@ languages : varchar(255)
@ gender_preferences : text
@ preferences_min_age : varchar(255)
@ preferences_max_age : varchar(255)
@ photo_filename : varchar(255)
```

```
ukds.note_ranges
id : int(11)
# note_id : int(11)
# percent_from : int(11)
# percent_to : int(11)
@ image : varchar(255)
@ title : varchar(255)
@ description : text
```

After



Publishing Apps

Varies by platform

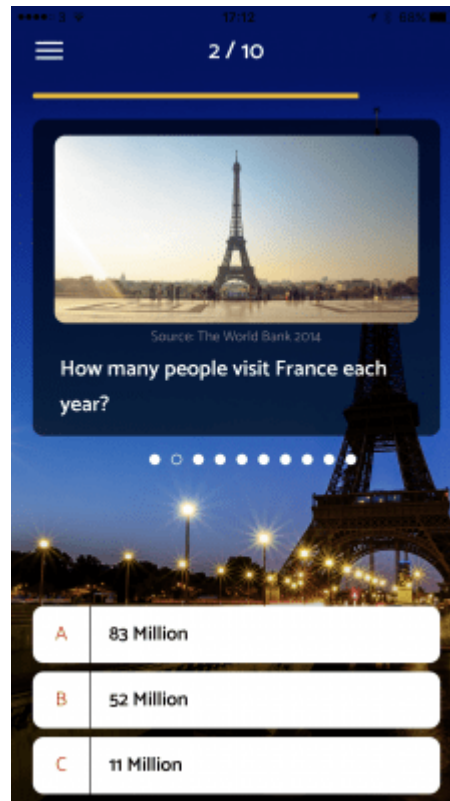


- Google Play store is very permissive



- Apple App store is very restrictive
 - Apple requires a D-U-N-S Number to set up an organization's account
 - communication issue between parties delays publishing

Obstacles Encountered and What We've Learnt

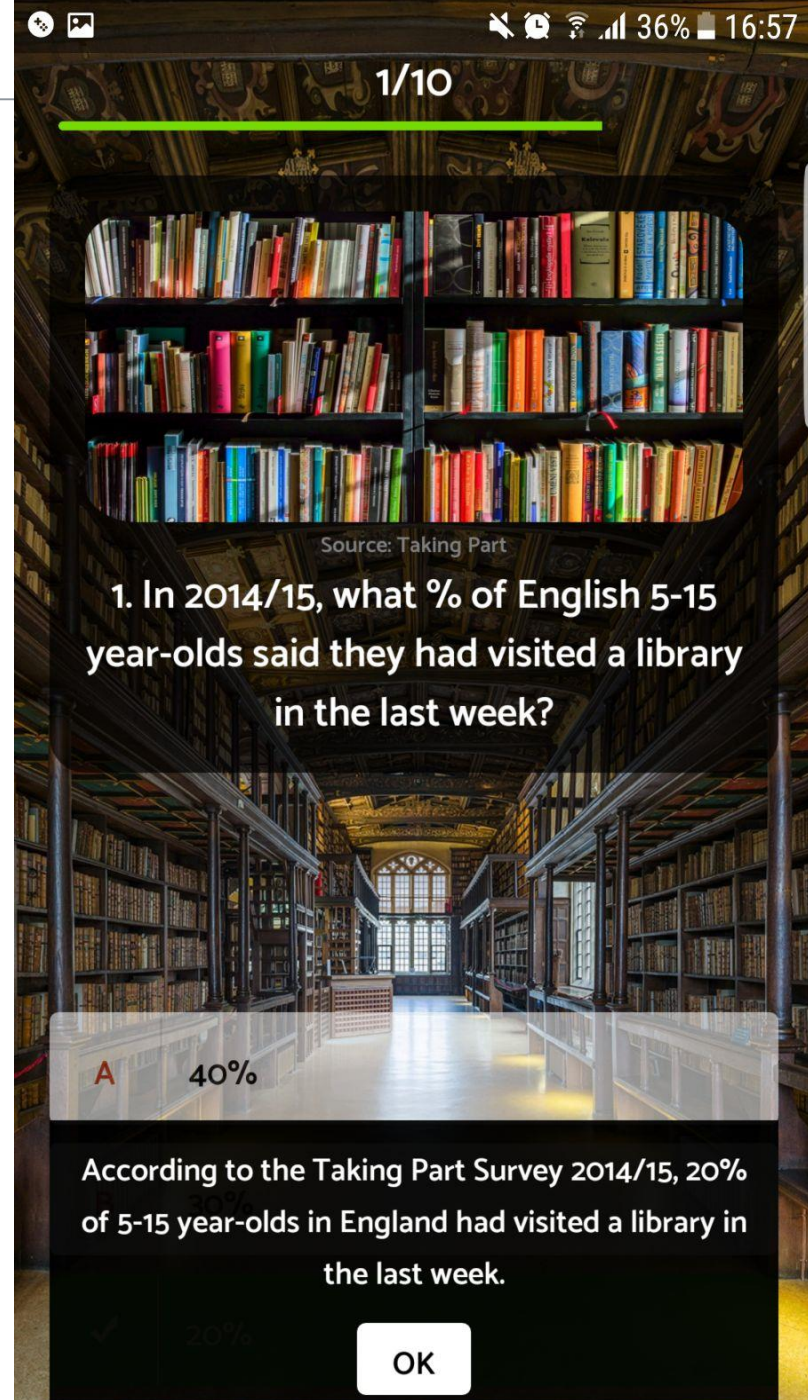


- *No commit history*
- *Lite documentation*

- *Deprecated code*
- *Skills and upskilling*

Future of the UKDS Quiz App

- Improved storage (cloud)
- Web-based version of the app
- Multi-answer questions
- Multi player mode



Questions

