



# Digital Methods for App Analysis

## Mapping App Ecologies in the Google Play Store

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# Research Context & Questions

**App ecologies** - ways that apps are organised and connected

**App stores** - app gatekeepers that present users with certain app ecologies

Raises the research questions of:

- How do app stores organise the app ecology space?
- How do they allow users to engage with that space?
- What kinds of ecology types occur? Do certain ecologies repeat?

One way to explore these questions is through a specific case study:

**The technicity of religion** - how are religious apps organised by and connected across the Google Play Store?



Apps

# Method 1: Semi-manual

Initial method:

1. List building. Keyword search in [App Annie](#) for: 1) christian, christianity, 2) islam, muslim, 3) jewish, judaism, 4) hindu, hinduism, 5) buddhism, buddhist.
2. Country: United States, date: July 1st 2015.
3. Get top 100 apps from the Google Play Store.
4. File > Save As > HTML
5. Copy/paste source code into Harvester tool.
6. Keep all URLs with [https://www.appannie.com/apps/google-play/app/\[appID\]](https://www.appannie.com/apps/google-play/app/[appID])
7. Get [appID] and append to URL [https://play.google.com/store/apps/similar?id=\[appID\]](https://play.google.com/store/apps/similar?id=[appID])
8. Insert URL into Import.IO > Magic
9. Download CSV
10. Add column with original app name
11. Combine 100 CSVs into one CSV
12. Turn CSV into Gephi file using [Table2Net](#)

APPS

BOOKS



Top Charts



Top Matrix



Keyword Ranks



App DB



## Keyword Ranks

About this report

### Search

islam

Go

Explore which apps are displayed by the appstores for different search terms.

Country

United States

Date

Jul 1, 2015

### What is trending?

tomcat contract killer candy crush monster strike clash of clans  
yik yak tinder diner dash contract killer sniper summoners war  
vpn defender i am dolphin priority matrix diamond digger  
brave frontier words with friends whisper nfl showdown metal skies  
hearthstone glu best fiends secret king game of war  
frozen jewels dash foursquare whatsapp kardashian chatous

### Top Apps for Islam

United States - Jul 1, 2015

Highlight Free Paid

#	iPhone 2,159 results	iPad 2,164 results	Google Play 250 results
1	Muslim Pro (Ramadan 2015) -... Bitsmedia Pte Ltd	Muslim Pro (Ramadan 2015) -... Bitsmedia Pte Ltd	Muslim Pro - Ramadan 2015 Muslim Pro Limited
2	Memorize Quran for Kids & A... BIGITEC GmbH	Athkar - أتکر fares.net	Salah Teacher (Salat - Islam) Codeling
3	Quran Audio FREE for Muslim... Quanticapps Ltd	Quran Audio FREE for Muslim... Quanticapps Ltd	Everything Islam Halal Apps
4	3D Salah Guide PakData	Athan Pro for Muslim (Ramad... Quanticapps Ltd	Islam: The Quran dimach.casslope
5	Quran Explorer www.QuranExplorer.com	3D Salah Guide PakData	6 Kalma of Islam Quran Reading
6	Athkar - أتکر fares.net	Quran Explorer www.QuranExplorer.com	Questions on Islam Feyyaz Bilim ve Gelişim Derneği



 Apps

My apps

Shop

Games

Family

Parent Guide

Editors' Choice

### Similar to Islam Tamil



Tamil Quran  
tamilliquran

★★★★★



Islamic Quotes  
tahir hoca

★★★★★



iNaqsh - Islamic Na  
iLogcreations

★★★★★



Islamic Calendar  
iLogcreations

★★★★★



Live Quran Radio -a  
Live Telecast of Makkal

★★★★★



Radio Dawah Online  
Fastrecharge

★★★★★



Islamic Stickers  
Bilal Apps

★★★★★



Tamil SMS  
Mahiways Solutions Pv

★★★★★



İslam Dünyası  
harunyahya

★★★★★



Type In Tamil  
AppsAmbi

★★★★★



English to Tamil Tra  
asanam

★★★★★



Islamic Hijri Calend  
ShreePanchang

★★★★★



[Extract Data](#)[See Examples](#)

#	cover_image	preordered_Jl...	title_Link	subtitle_Link	description_I ...	pon_number	free_label
1		Pre-ordered	Tamil Quran	tamilquran	<a href="https://play.google.com/store/apps/details?id=com.t...">https://play.google.com/store/apps/details?id=com.t...</a>	1	Free
2		Pre-ordered	Islamic Quotes	tahir hoca	<a href="https://play.google.com/store/apps/details?id=com.t...">https://play.google.com/store/apps/details?id=com.t...</a>	1	Free
3		Pre-ordered	iNaqsh - Islamic Naqsh	iLogcreations	<a href="https://play.google.com/store/apps/details?id=iLog...">https://play.google.com/store/apps/details?id=iLog...</a>	1	Free
4		Pre-ordered	Islamic Calendar	iLogcreations	<a href="https://play.google.com/store/apps/details?id=iLog.IC">https://play.google.com/store/apps/details?id=iLog.IC</a>	1	Free
5		Pre-ordered	Live Quran Radio -all Language	Live Telecast of Makkah a...	<a href="https://play.google.com/store/apps/details?id=com....">https://play.google.com/store/apps/details?id=com....</a>	1	Free
6		Pre-ordered	Radio Dawah Online Islam Radio	Fastrecharge	<a href="https://play.google.com/store/apps/details?id=com.f...">https://play.google.com/store/apps/details?id=com.f...</a>	1	Free
7		Pre-ordered	Islamic Stickers	Bilal Apps	<a href="https://play.google.com/store/apps/details?id=islami...">https://play.google.com/store/apps/details?id=islami...</a>	1	Free
8		Pre-ordered	Tamil SMS	Mahiways Solutions Pvt Ltd	<a href="https://play.google.com/store/apps/details?id=com....">https://play.google.com/store/apps/details?id=com....</a>	1	Free
9		Pre-ordered	İslam Dünyası	harunyahya	<a href="https://play.google.com/store/apps/details?id=com....">https://play.google.com/store/apps/details?id=com....</a>	1	Free
10		Pre-ordered	Type In Tamil	AppsAmbi	<a href="https://play.google.com/store/apps/details?id=com....">https://play.google.com/store/apps/details?id=com....</a>	1	Free
11		Pre-ordered	English to Tamil Translator	asanam	<a href="https://play.google.com/store/apps/details?id=com....">https://play.google.com/store/apps/details?id=com....</a>	1	Free
12		Pre-ordered	Islamic Hijri Calendar 2015	ShreeSankar...	<a href="https://play.google.com/store/apps/details?id=com...">https://play.google.com/store/apps/details?id=com...</a>	1	Free

[Download CSV](#)[I was looking for other data](#)[Get API](#)

# Method 2

1. Create list with top 100 apps using App Annie for the keywords:

- a. christian, christianity
- b. islam, muslim
- c. jewish, judaism
- d. hindu, hinduism
- e. buddhism, buddhist

2. Clean/Collect App IDs

3. Insert into tool

4. Result: Google Play Store “Similar to” network graphs

## Google Play Similar Apps

Input

Input APP ids, one per line (e.g. com.okcupid.okcupid):

```
air.islamtamil
cevsen.start
coding.salahteacherf.com
com.AppXtremes.shadikiraat
com.AyatEShifa.manzilayatshifa
com.CGlance.sahabas
com.EaseApps.AllahNames
com.EaseApps.IslamicCalFree
com.EaseApps.hadithqudsi
com.ImranQureshi.QuranFree
```

Name your result

app\_annie\_muslim\_top100\_anne

Get similar apps



# Christian/Christianity

## 3 Big Clusters (8+ central nodes):

Remarkable Ecology:

Big cluster around *Christian Music* (yellow, right-bottom): 'music', 'songs', 'radio', 'Christian rap,' etc. This cluster is also linked to smaller categories of *Music Clusters* ('ringtones,' etc) and spills over to other clusters, such as the *Books Cluster* (green, bottom-left) and the *Kids Cluster* (orange-ish, right)

Expected Ecologies:

Big cluster around *Christian Books* (green, bottom, left): books, e-books, etc.

Big cluster around apps for practical use/daily worship: prayers, bible quotes, songs, etc. (purple, top).

## 6 Medium Clusters (3-8 central nodes) (e.g):

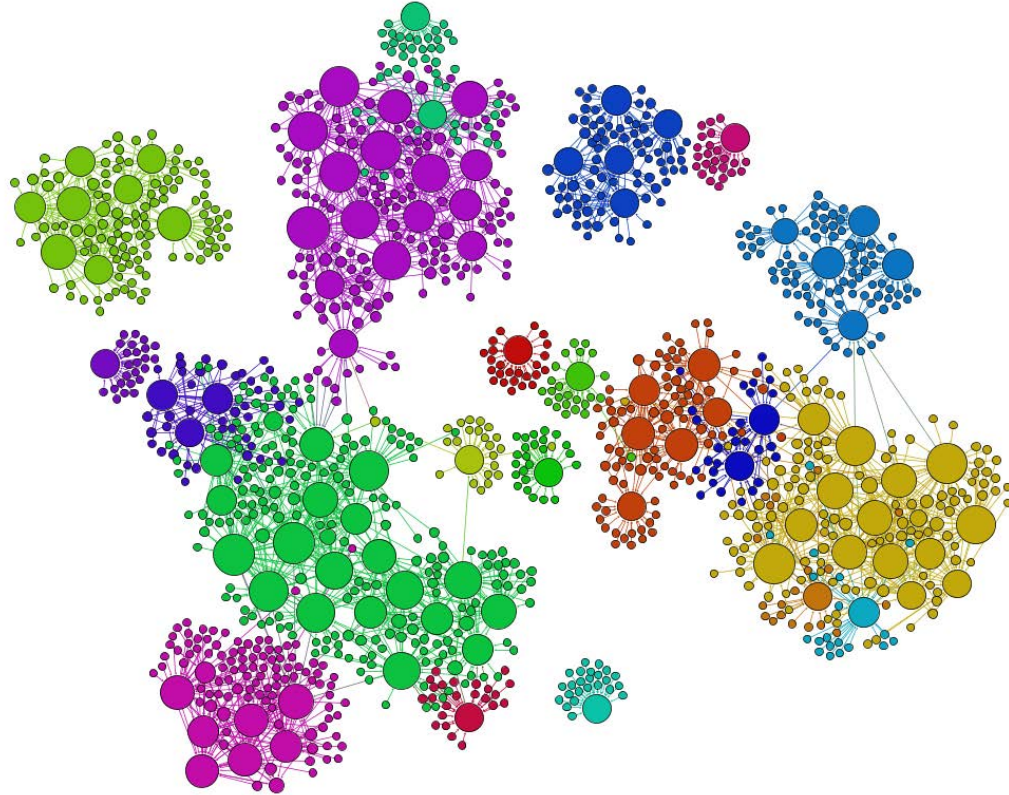
Wallpapers (medium, green, top, left)

Lifestyle/Dating (medium, dark blue, top)

## 11 Small Clusters (1-2 central nodes) (e.g)

Christian Horoscope (small, dark red, center)

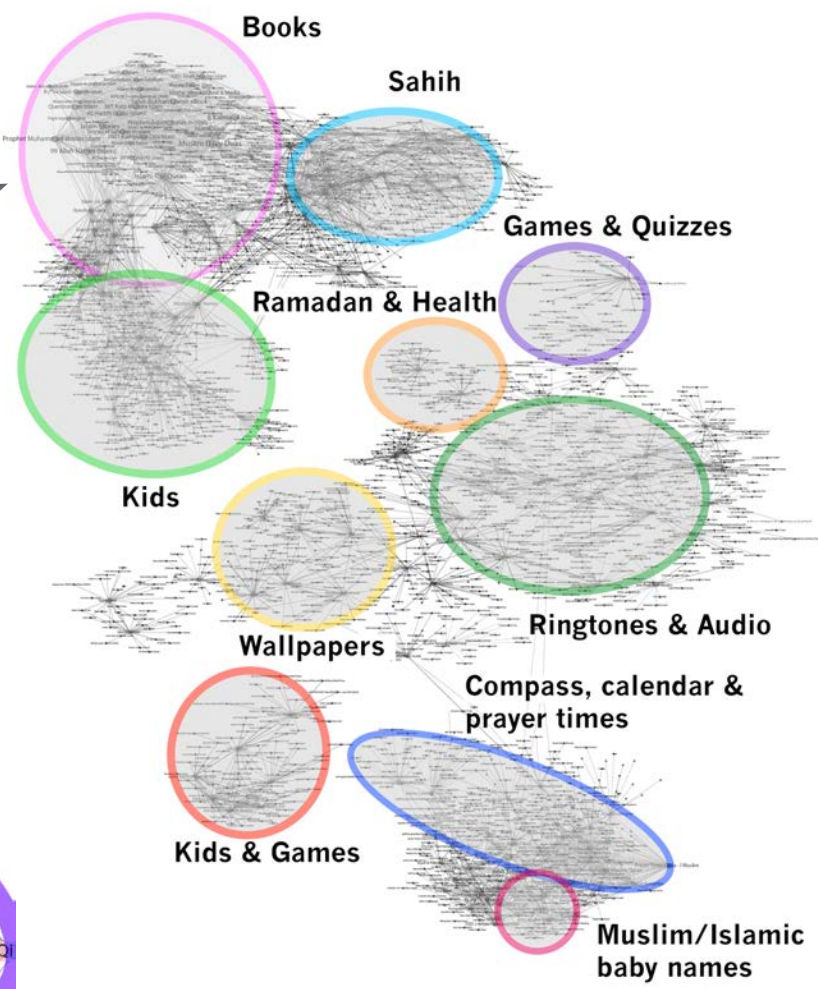
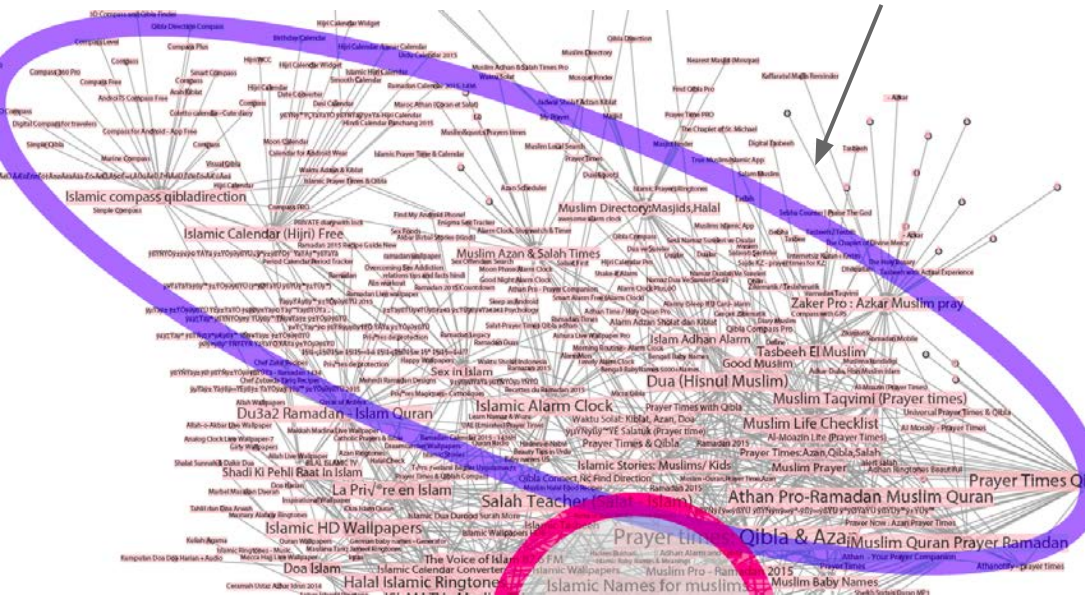
Bible (light green-ish, center-center)





# Islam/Muslim

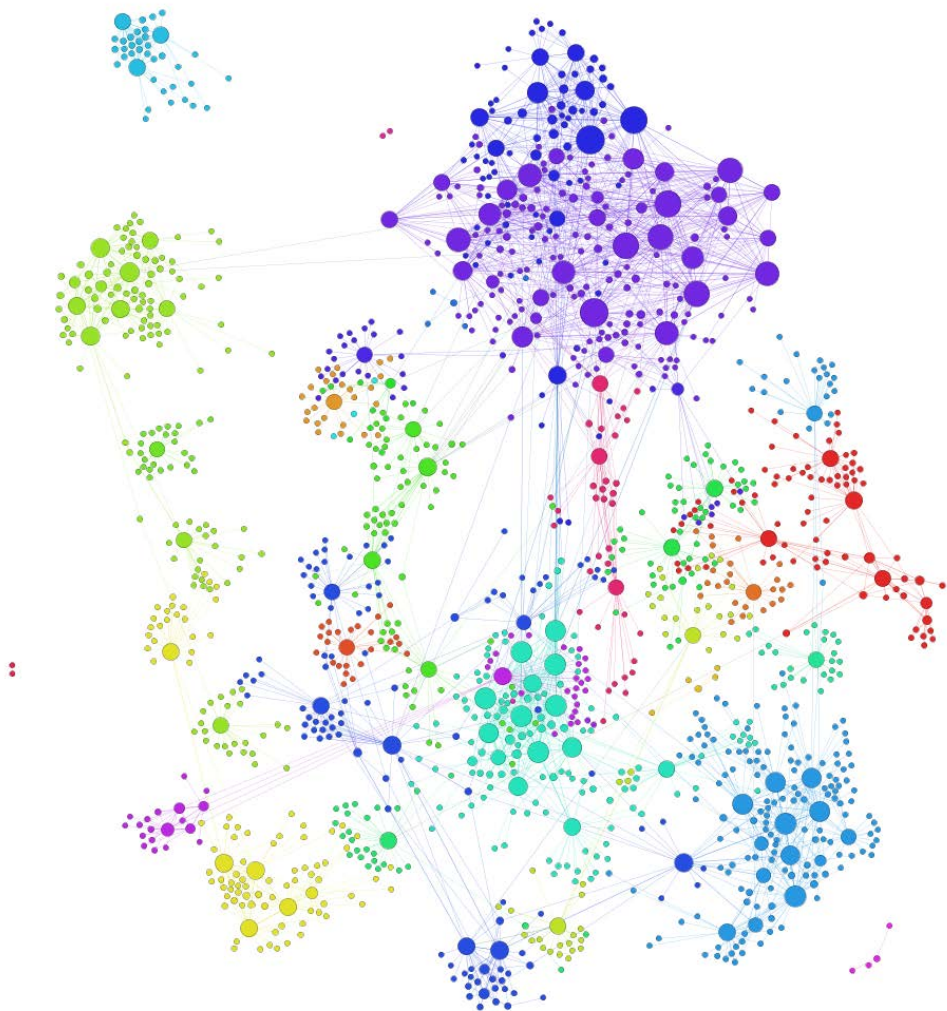
- Top: Quran and secondary texts
- Bottom: Device-supported religious practices, related to Islam and Ramadan 2015:
  - compass, calendar, prayer times apps



# Judaism/Jewish

This data set returns roughly 3 main areas of clusters around sets of similar apps for religious texts, lifestyle apps, and jewish media.

- **Top and middle** (purple and dark blue): This dominant area features Jewish bible and prayer apps and sources for Torah studies.
- **Bottom right** (red and light blue): there is a smaller but also relatively defined cluster for jewish lifestyle apps such as dating apps, kosher restaurant apps, and wallpaper.
- **Left** (green and yellow): The third area is a media focused space featuring primarily news and music apps



# Hinduism/Hindu

**Largest cluster** (royal blue): Support tools (calendars; some wallpapers; messages/sayings)

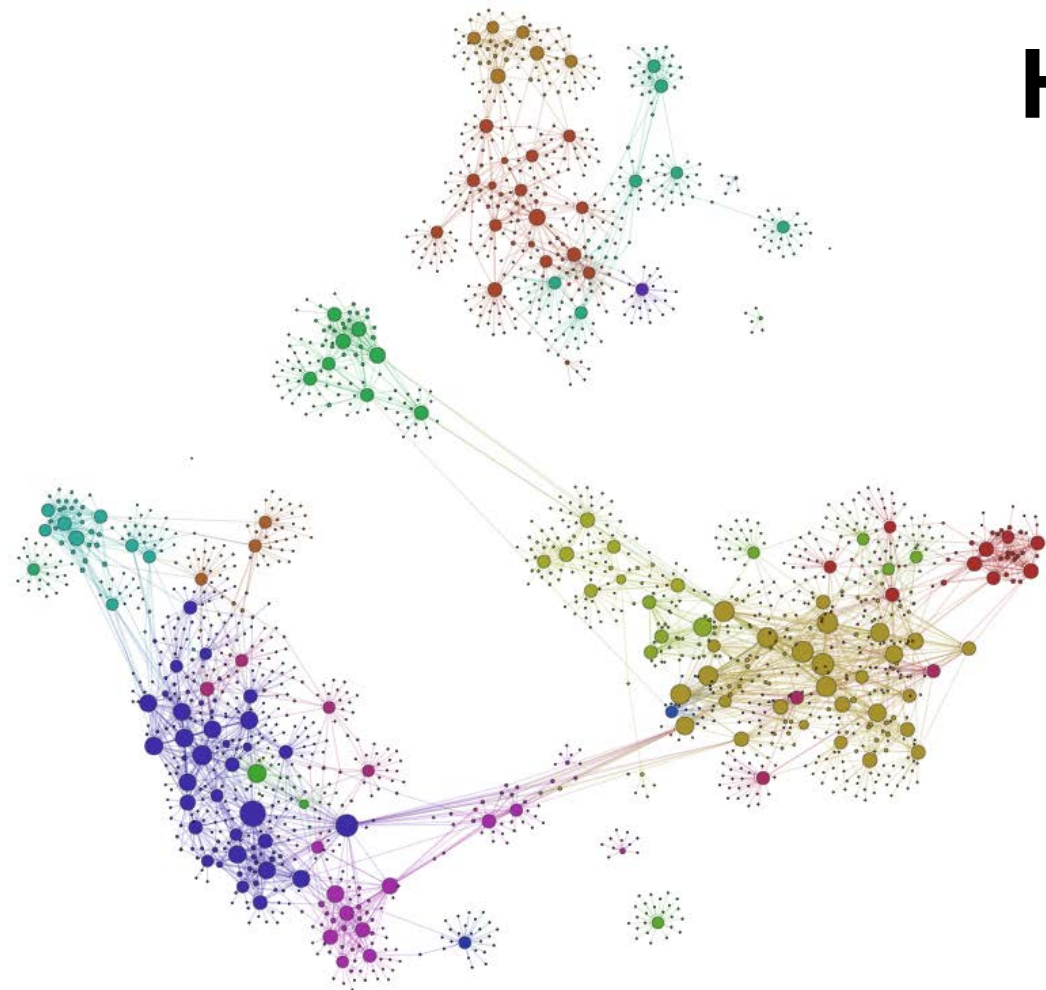
**Second largest clusters:**

Yellow - Prayers & Books

Red - Wallpapers & Horoscopes/Astrology

**Others:** News (Green); Mantras (Top yellow); other wallpapers (Right blue)

**Overlaps:** Quran and Islam apps scattered throughout (also “Hinduism vs Islam”); widgets for Judaism and Christianity; Buddhist apps throughout

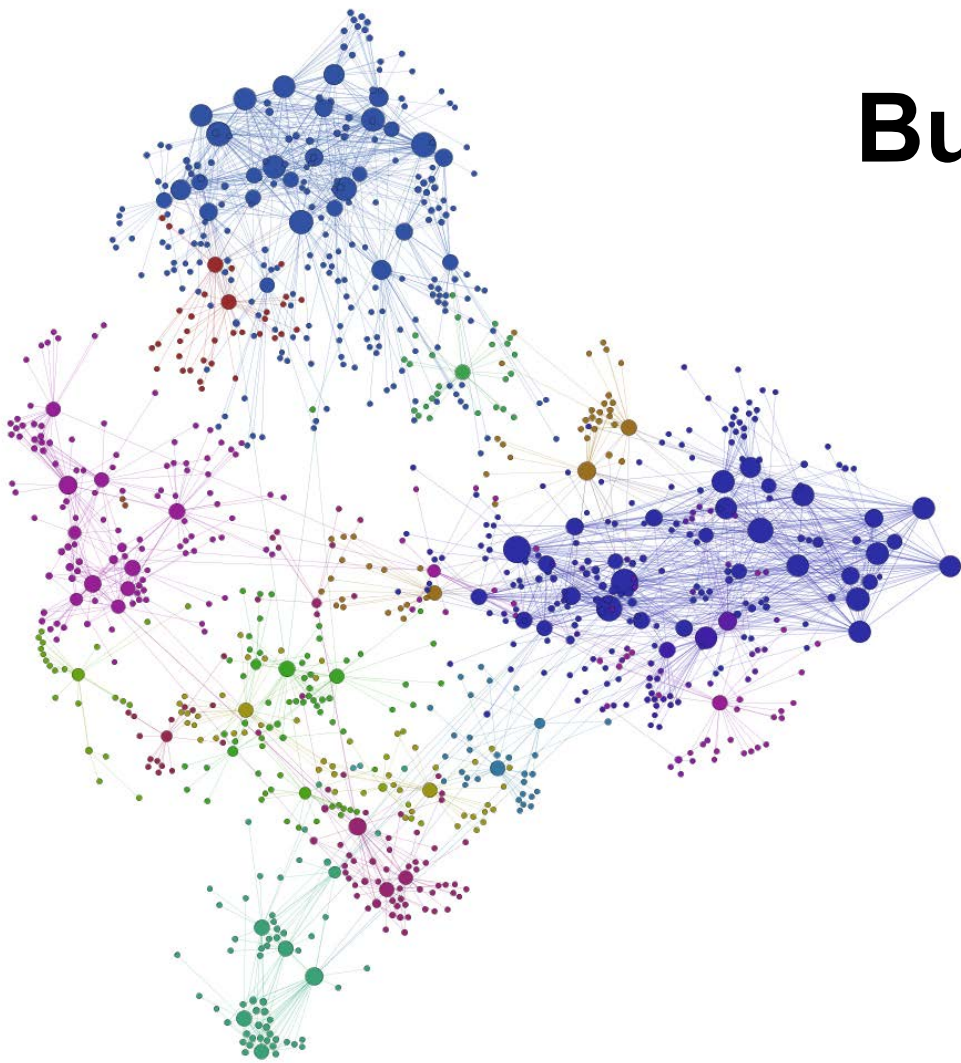




# Buddhist/Buddhism

This space contains a number of important characteristics.

- **Top and right** (blue, bluish purple): These two dominant clusters broadly aligned with an English 'basic buddhism' network segment > specialized dictionaries for the translation of primary texts;
- **Left** (pink): Mostly features Buddhist music.
- **Minor clusters** include meditation, calendar apps, and specific mantras (Dhammapada; Om Mani Padme Hung; Nīlakaṇṭha Dhāraṇī). Mantra apps contain both images, text and recorded voice (the augmentation of Buddhist 'instruments of the mind').
- No ringtones; no dating sites; no wallpaper; no news; no kids.





Calendars, everyday religious support

Apps cluster according to religion. Sub-clusters noticed with names of religions data set: wallpaper, calendars, bibles, music (songs, radio, ringtones), news.

Bridges: Calendars bridge religions and connect literature and lifestyle spaces. A lot of bridging between Christianity and Judaism clusters on the bottom with bible apps.

Music, movies

Religious texts, bibles, songs, other literature

**Legend:**

Yellow - Christian/Christianity

Blue - Islam/Muslim

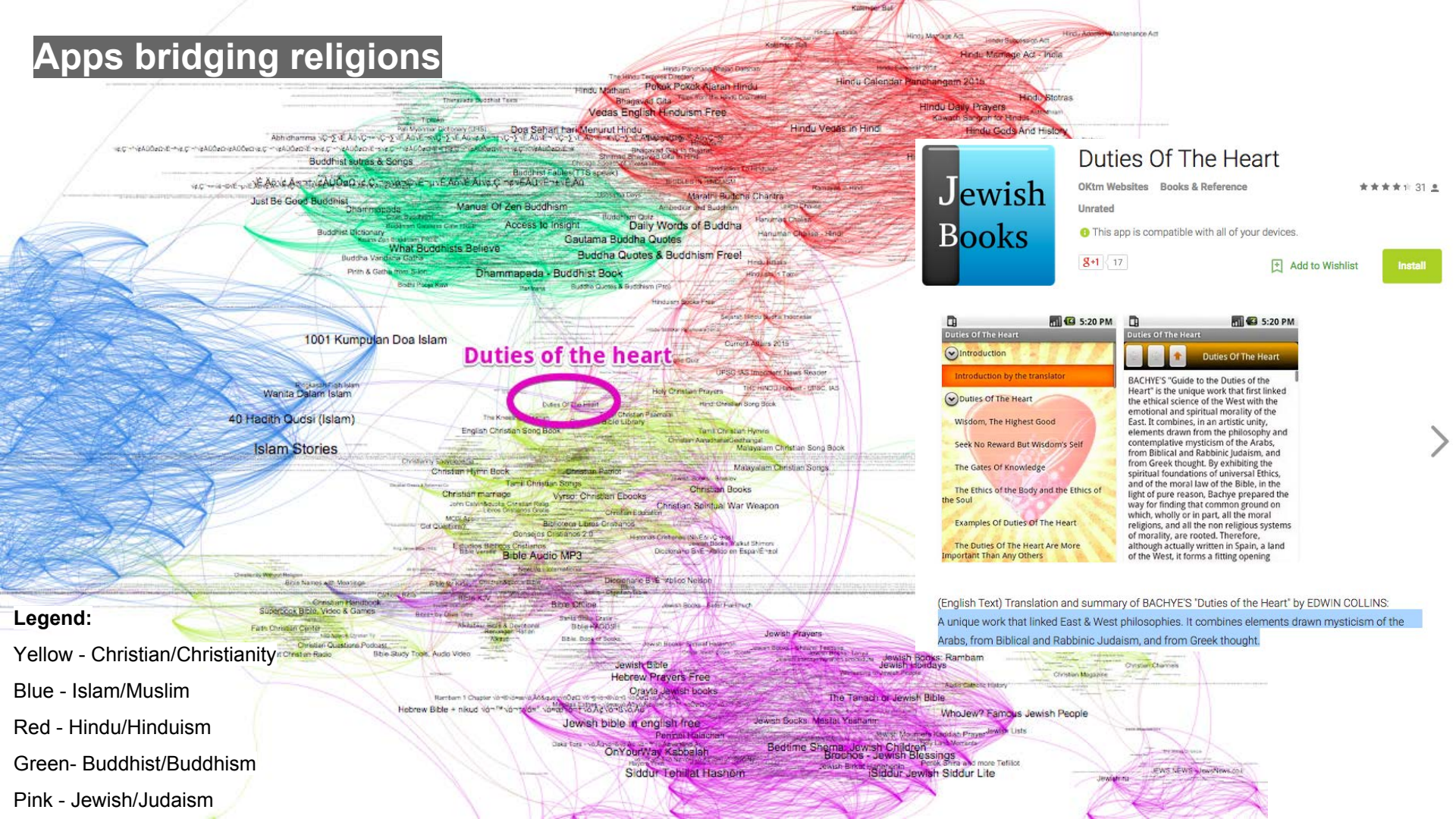
Red - Hindu/Hinduism

Green- Buddhist/Buddhism

Pink - Jewish/Judaism



# Apps bridging religions



1001 Kumpulan Doa Islam

40 Hadith Qudsi (Islam)

Islam Stories

Duties of the heart

Duties of the Heart



Duties Of The Heart

OKtm Websites Books & Reference

★★★★★ 31

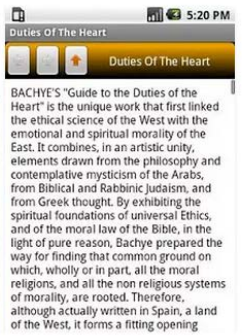
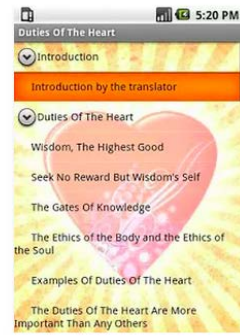
Unrated

This app is compatible with all of your devices.

8+ 17

Add to Wishlist

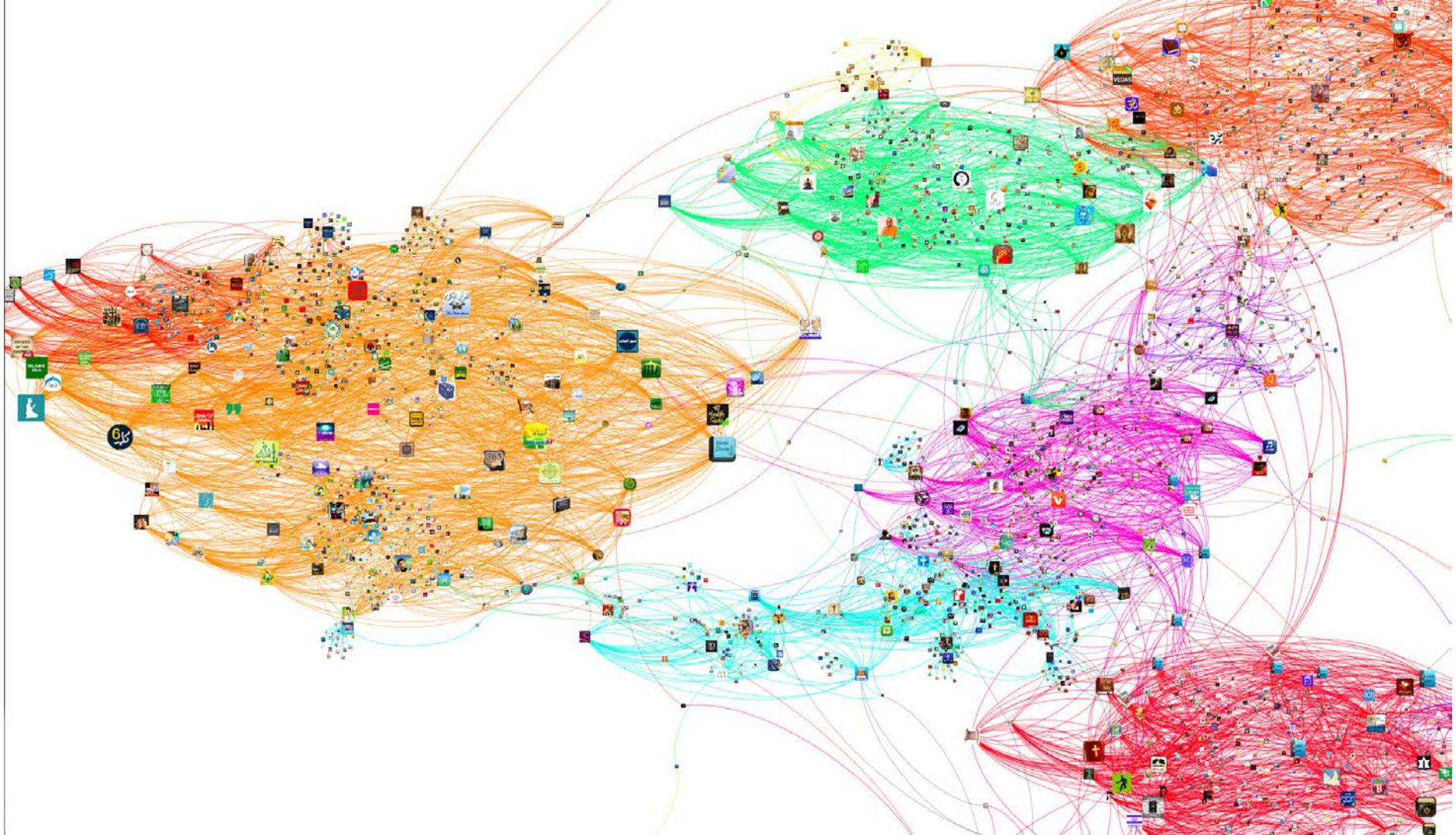
Install



(English Text) Translation and summary of BACHY'S 'Duties of the Heart' by EDWIN COLLINS:  
A unique work that linked East & West philosophies. It combines elements drawn mysticism of the Arabs, from Biblical and Rabbinic Judaism, and from Greek thought.

- Legend:**
- Yellow - Christian/Christianity
  - Blue - Islam/Muslim
  - Red - Hindu/Hinduism
  - Green- Buddhist/Buddhism
  - Pink - Jewish/Judaism





# Conclusion: Technicity of religion

App ecologies are very much shaped by the nature of religious practices. As a whole, the ecologies show us a kind of **technicity of religion**, or the tools that are commonly used to “perform a religion.”

For instance, the Islam/Muslim space contains many calendar apps, compasses, and prayer time apps to assist with Ramadan and daily religious rituals. While many of the religions share attributes like wallpapers or ringtones, they vary in their emphasis on prayer, religious study, music, mantras, and lifestyle choices like food or dating across religions.

## Further Questions

- Compare app ecologies across platforms. For instance, how does Google Play compare to the iTunes App store?
- In what other ways do apps fit into the rituals and textures of everyday life? What further categories can we explore aside from religion?
  - Examples: college, LGBT, business, etc.
- User-oriented exploration - e.g. How does the app ecology generated by the store compare to the user-organized ecology?
  - How do users navigate the app ecology? Do they go with the app store’s logic or do they resist it?