APP Recommender

Intelligent App Distribution Towards an Optimised App Discovery

http://apprecommender.caixamagica.pt

Motivation

- Critical importance of having a mobile solution to be in contact with their targeted audience.

- Massive competition among apps.
  - Google Play Store: +2.8 million apps (2017),
  - Apple App Store: +2.2 million apps (2017),
  - Portuguese Aptoide: +1 million apps

- 300 billion apps expected to be downloaded in 2020. However, many apps downloaded are never used and, in 77% of the cases, apps are never used again 72 hours after the installation.

- Considerable misalignment between the apps offered by the app stores and the finding of the right app from the consumers according to their needs (discovery).

- Gartner predicted that less than 0.01% of mobile developers had commercial success by the end of 2018, due to this misalignment and the massive competition among mobile apps.

- 52% of the apps are discovered through word-of-mouth, and only 40% are discovered using app store's digital services.

These inefficiencies make the distribution and discovery of apps a considerable and important challenge on an industry with massive penetration in societies that is still growing fast.

Goal

Research and develop technologies capable of offering the right app to the right user at the right time, optimizing thus the current app distribution and discovery services, and allowing companies to get closer to their target customers.

Approach

Develop a fusion-based recommender system and a semantic search engine.

Impact

The project aims to have impact on the mobile app consumers, mobile app publishers and on the Aptoide app store, though Caixa Mágica, current lead promoter of this project that will bring the results to the market.

For the consumers, the impact will be in the ease of use, efficiency and satisfaction in the discovery of apps, because of the improved alignment between their needs, characteristics and context with the apps offered by the app store.

For developers and companies that promote mobile apps, the impact will be in the improved proximity to their targeted audience, optimizing the user acquisition and retention, and inherently the commercial success.

For Caixa Mágica and Aptoide, the impact will be on the optimized quality of service provided to consumers and companies, and in the consequent increase of the number of apps submitted to the store, active users and revenue.

Distribution Monitoring and Management

App Distribution Manager

Manage Business Related Factors
(e.g. contact points where to recommend)

MonitorKPIs

Search Engine Expert

Monitor KPIs
(e.g. success on the funnel)

Manage Behavior
(e.g. indexing weights)

Supervise Knowledge Learning

Fusion-based Recommender Expert

Monitor KPIs
(e.g. compare different contact points success)

Manage Behavior
(e.g. recommender weights)

App Providers

Publish Apps

CATAPPULT

Apps and Related Metadata

App Distribution Infrastructure

Semantic Search Engine

App Store Business Factors

KPIs
Learning
Operation Rules

Operation Rules
KPIs

Fusion-based Recommender System

Entity Recognizer

Semantic Matching and Disambiguation

Multicriteria App Profiling
(characteristics, relevant location, popularity, …)

Filter and Combination Services

Semantic Knowledge Base

Multicriteria User Profiling
(preferences, location, social relations, …)

Automatic Knowledge Learning

App Usage and Users Context
(encoded)

Fusion-based Recommender

App Store Search Engine Integration
(Elastic Search)

App Store Contact Points
(Homepage, App Bundles, App View)

Pseudo anonymization layer
(encoding/decoding users private data)

App Discovery

Query / User intention

Inputs for semantic learning

Users' App Related Context
(apps installed, location,…)

Multicriteria Intelligent App Recommendations
(based on location, prior preferences, friends, etc.)

Search apps in the app store

Use the app store

Discover apps browsing the store

Context-aware Semantically Intelligent Search Results

Aptoide
Your Android App Store

Context-aware App Discovery with Download Incentives
(AppCoins / Proof of Attention)

Caixa Mágica Software