

Association Rules Mining Analysis of App Usage Based on Mobile Traffic Flow Data

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Abstract

- ▶ With the rapid development of mobile Internet, more and more Apps emerge in people's daily life.
- ▶ It is important to analyze the relations among Apps, which is helpful for network management and control.
- ▶ In this paper, we utilize network footprint data which consists of DPI data from ISPs and Crawler data from Web for App usage analysis.
- ▶ Focusing on the most popular Apps in China, we propose a distributed NFP data collection and processing framework.
- ▶ We do association rules mining on NFP data by using Apriori and MS-Apriori algorithm.

EXISTING

- With mutually promotion, smartphones and mobile applications have been both developed rapidly.
- Since users can do anything only by their smartphones in house or far away, almost all people became more and more inseparable from the smartphones and the same smartphones infiltrate into every aspect of life.
- Finding the relations of App usage on mobile Internet is important for App developer to mine the users' interests and dig potential users.
- There are a few researches on Web usage by association rules mining, however, to the knowledge of the authors, there are little researches on large- scale App association analysis, due to limitation of App usage data.

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- ▶ With the rapid development of mobile Internet, more and more Apps emerge in people's daily life.
- ▶ It is important to analyze the relations among Apps, which is helpful for network management and control

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DISADVANTAGE

- ▶ It is important to analyze the relations among Apps, which is helpful for network management and control
- ▶ Since users can do anything only by their smart phones in house or far away, almost all people became more and more inseparable from the smart phones and the same smart phones infiltrate into every aspect of life.
- ▶ Finding the relations of App usage on mobile Internet is important for App developer to mine the users' interests and dig potential users.

Proposed system

- ▶ we focus on App usage analysis by association rule analysis for the NFP data. Our main task is to observe which Apps are together used.
- ▶ We collect data from ISP traffic data and App detail information by Crawler of the most popular Apps in China.
- ▶ And we used Apriori and MS-Apriori mainly do association rules analysis. MS-Apriori is a algorithm based on Apriori to solve the rare item problem that some item appears rarely.
- ▶ Through grouping by users of NFP data in specific period, we can get users visitation of Apps in this period.
- ▶ Then using Apriori and MS-Apriori, we generate rules and discuss how to select interesting rules. Finally, we analyze the rules we get.
- ▶ In this paper, we propose an App usage association rules analysis system. Based on this, App developers can recommend their App to targeted crowd to achieve better results.

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- ▶ we collect NFP data of users' App visitation records and do association rules analysis using Apriori and MS-Apriori for NFP data to get App usage rules.
- ▶ These rules give us some novelty discoveries and inspiration to recommend Apps.

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ADVANTAGE

- ▶ We do association rules mining on NFP data by using Apriori and MS-Apriori algorithm.
- ▶ Experimental results validate our proposed method and present some interesting association rules of Apps.
- ▶ We propose an App usage association rules analysis system. Based on this, App developers can recommend their App to targeted crowd to achieve better results.

HARDWARE REQUIREMENTS

- ▶ Processor – Pentium -III
- ▶ Speed – 1.1 Ghz
- ▶ RAM – 256 MB(min)
- ▶ Hard Disk – 20 GB
- ▶ Floppy Drive – 1.44 MB
- ▶ Key Board – Standard Windows Keyboard
- ▶ Mouse – Two or Three Button Mouse
- ▶ Monitor – SVGA

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SOFTWARE REQUIREMENTS

- ▶ Operating System : Windows 8
- ▶ Front End : Java / DOTNET
- ▶ Database : Mysql / HEIDISQL

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CONCLUSION

- ▶ In this paper, we propose a data model NFP and collect NFP from DPI of ISPs and Crawler data of App detailed information.
- ▶ Then, we do association rule mining for the NFP data. We find many association rules which are reasonable or look like incredible and the rules are different at different time periods.
- ▶ The rules provide insight for App developers to recommend other Apps to their users.
- ▶ And developers also can have knowledge of their users' interest and usage pattern. For the next step we want to use the same method to do association rules for the categories instead of the specific App or for the people set who use the same App in same time period to enrich our experiment results.

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