Enhancing enterprise streaming platforms with contextual post-filtering

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Day: Saturday
Hour: 21
Title                                 Day       Hour      Device    Combined
-------------------------------------------------------------------------------
Home and Away                         3         4         5         12
Huskestue                             -2        -1        -2        -5
The Marlow Murder Club                0         1         0         1
Vinnerschkalle                        3         6         5         14
Sofa                                  -2        -1        -2        -5
Evig singel                           7         6         5         18
Purk                                  -2        -1        -2        -5
The Rookie                            3         4         3         10
FBI: Most Wanted                      -2        -1        -2        -5
Badehotellet                          3         6         3         12
Dyrepasserne                          3         -1        3         5
Below Deck                            -2        -1        -2        -5
TV 2 Nyheter                          5         4         5         14
Grey's Anatomy                        5         4         3         12
The Real Housewives of Potomac        -2        -1        -2        -5
Bäckström                             -2        -1        -2        -5
The Good Doctor                       -2        -1        -2        -5
London Kills                          0         1         0         1
Station 19                            3         -1        -2        0
Ett sista race                        0         1         0         1
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Figure 1: Re-ranking recommendations with post-filtering

Abstract

Recommender systems are crucial when dealing with large scale commercial streaming platforms such as TV2 Play or Netflix. While users might know what content they currently want to consume, they might not be certain about what they will consume in the future.

Post-filtering is a method in recommender systems that incorporates contextual factors. Post-filtering takes contextual factors such as time of day and tries to either filter or re-rank recommended titles to further improve recommendations.

Research questions

1. Do incorporating contextual factors such as device type influence the quality of recommendations?

2. Can a post-filtering approach based on contextual factors provide better recommendations?

Methodology

Content preferences might vary based on contextual factors such as device type or day of the week. Given these contextual factors, a recommender system could adapt to user behaviour and viewing patterns and provide recommendations of higher quality than otherwise. For example, recommending last week's football match might be irrelevant if users often watch live matches on Friday evening. This could be avoided had context been incorporated into the recommender system. If the contextual recommender system understands that football is usually watched on Friday nights, it might be omitted on other days. Such methods can be implemented in several ways, notably by using techniques such as pre-filtering, contextual modelling and post-filtering. This thesis dives deeper into contextual post-filtering as a way to provide more accurate recommendations to users of the streaming platform TV2 Play, specifically by analysing user behaviour on different device types, such as TVs, smartphones and tablets as well as temporal factors like time of day and day of the week.

Conclusion

By taking into account the device type and other contextual factors, a recommender system for streaming platforms might improve as user behaviour could differ depending on the device type.

A user watching on a smartphone might enjoy shorter types of content compared to on a TV, who might prefer longer content. This combined with temporal contextual factors such as the day of the week and the hour of the day could improve the performance of such recommender systems by letting users spend more time watching and less time deciding what to watch. In this master's thesis project, I address the challenges of context-awareness in media streaming platforms by incorporating contextual factors (such as the user's device type) into the recommendation process.

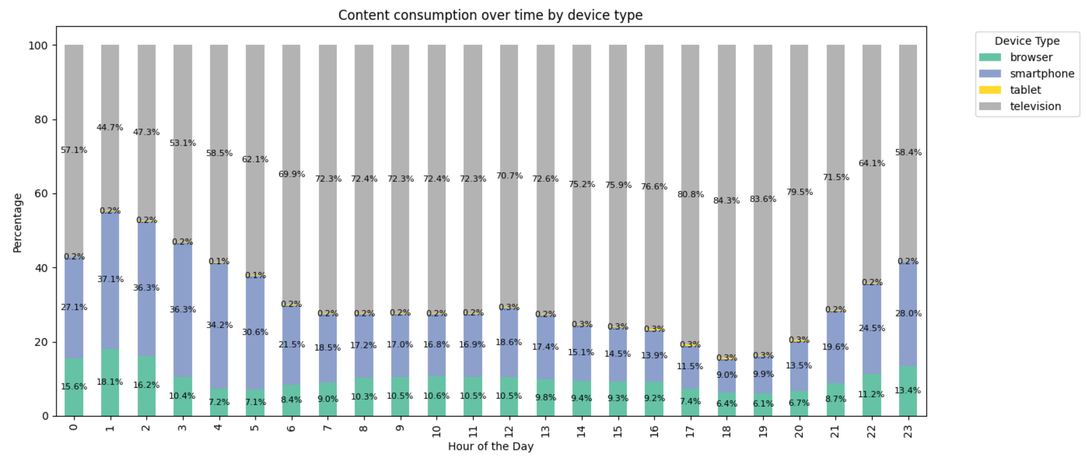

Figure 2: Content consumption over time by device type

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