

Universiti Teknologi MARA

**Dynamic Analysis of Breaking News
Content on Facebook Based on
Susceptible-Infected-Recovered (SIR)
Model**

Nur Natasha Arisha Binti Rizan

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STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

..... *Tasha*

NUR NATASHA ARISHA BINTI RIZAN
2017189971

AUGUST 5, 2020

ABSTRACT

Facebook acts as an information medium since it provides the opportunities in distributing news. Facebook user will know what is happening around the world and can get information from the news. Some of the breaking news gets viral as soon as it is posted. However, the duration for the spread of viral breaking news is uncertain. Thus, this study is carried out to analyse the dynamics of breaking news content on Facebook based on Susceptible-Infected-Recovered (SIR) model. This study is also conducted to formulate a model of the spreading nature of breaking news on Facebook and to compare the growth and the decline of the number of viewers in relation to the breaking news. The model consists of three variables which are Facebook user which is exposed to the viral content (susceptible), Facebook user receiving and sharing the viral content (infected) and Facebook user that stops posting the viral content (recovered). The SIR model without demography and SIR model with demography are discussed with the news related to Covid-19 in China and news related to death of Abam Bocey; in which the news is selected. The news is selected from CNN's Facebook account and Astro AWANI, respectively. The numbers of likes, comments, shares, viewers and the number of followers of the Facebook accounts have been collected. Linear stability analysis has been carried out and the SIR model solutions are analysed. The results of reproduction number indicate that the selected news for both SIR model without demography and SIR model with demography is epidemic since the breaking news content is spread widely through Facebook users at a certain time. The results also showed that both of the news spread faster during the earliest part of the incident by using both SIR models. This indicates that the SIR model is a reliable method for analysing the viral content dynamics.

Keywords: SIR Model, Facebook, Breaking News

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