

## ABSTRACT

Telkom University has 7 faculties which are divided into 18 study program engineering and 23 study program non engineering. A total of 26,152 were recorded as an active student of Telkom University in 2018/2019. The number of students this year, making the spread of residence is diverse, so that the student part does not know where the number of students chooses the place of boarding and how the profile of each student Telkom University, both from In terms of IPK (Cumulative Achievement Index), TAK (Transcript student *Activity*), and campus independent followed. This research aims to design a *Geographic Information System* (GIS) based application to profiling the boarding place of Telkom University students.

Application profiling Telkom University's boarding place using waterfall method. The phases of the system are combined with *K-means* cluster to produce grouping Telkom University students based on the boarding site. This web-based system is created using the PHP CodeIgniter and MySQL framework used for data storage (database). System testing using the method black box and user acceptance test.

The result of this research is a *Geographic Information System* (GIS) based application for profiling student's boarding place. The main function of this system is to assist the internal party of Telkom University which is the student section to know the number of students choose the cost place and how the profile of Telkom University students in terms of GPA, TAK, and campus activities that Followed. The result of student cost data grouping with K-means cluster is displayed in table Form based on cluster formed. Then the cost of place data is displayed with a map based geographic information System (GIS) in the form of coverage area. The use of GIS in determining the mapping of the existing cost place in Telkom University area can be used for further research..

Keywords: *Clustering K-means, GIS, Profiling, Waterfall.*