# IU bus data study and efficiency improvement

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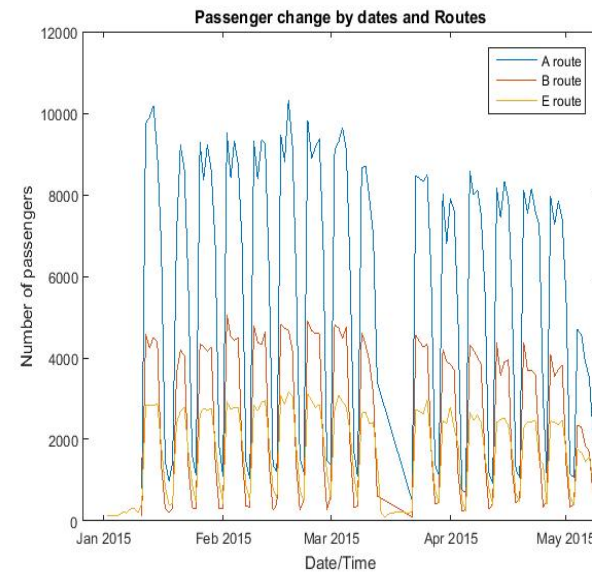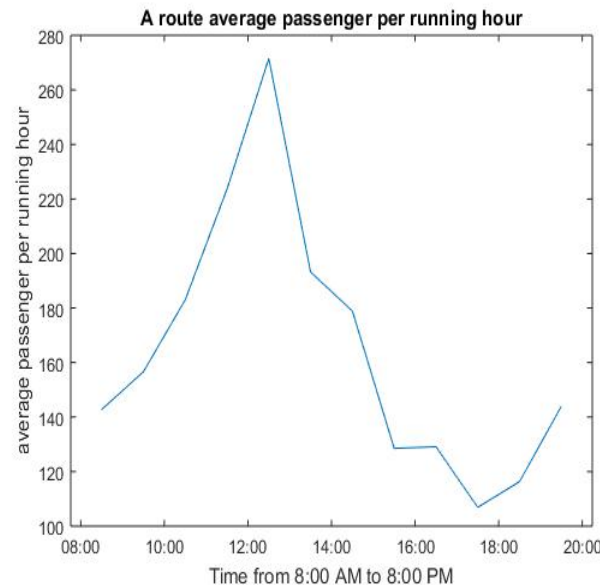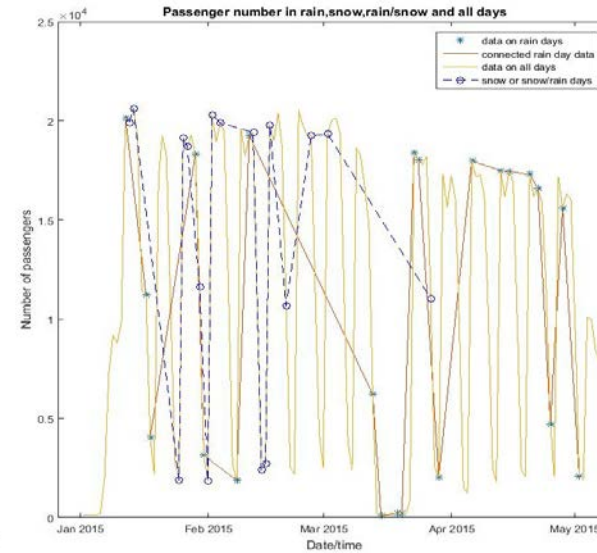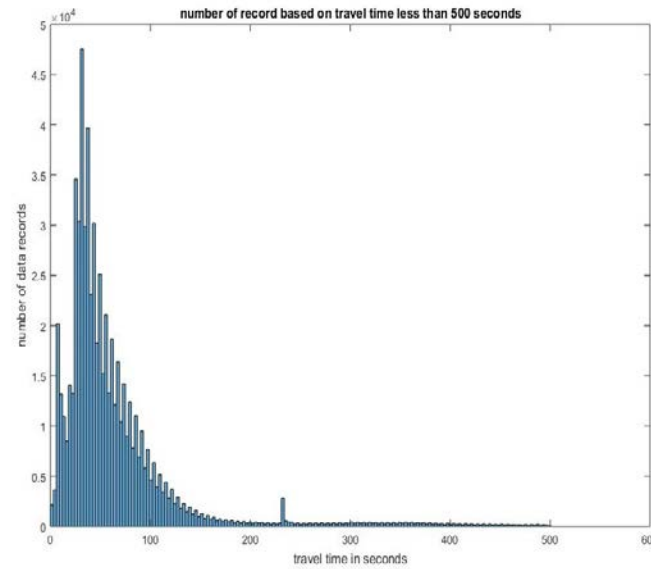
## Introduction

With more than 10000 riding each day, IU buses play an important role in IU transportation.

The goal of this project is understanding the IU bus data and improve the efficiency of IU bus.

## Challenges

1. The number of passenger constantly changing.
2. The schedule of buses may not fit for the number of passenger.

## References and acknowledgement

1. Furth, P. (2000). *Data analysis for bus planning and monitoring*. Washington, D.C.: National Academy Press.
2. Furth, P. (2000). *Data analysis for bus planning and monitoring*. Washington, D.C.: National Academy Press.
3. Indiana University Campus Bus. (n.d.). Retrieved December 8, 2015, http://www.iubus.indiana.edu/campus_bus/bus_schedule.html
4. Thanks IU bus providing data. Thanks Wonyong Ha and Luit Saikia for technical assistance.

number of record based on travel time less than 500 seconds



Passenger number in rain,snow,rain/snow and all days



A route average passenger per running hour



Passenger change by dates and Routes

## Results

1. Popularity: A>B>E
2. Travel between 2 bus stops takes <220 seconds in 95%+ cases.
3. 5%-25% more passengers take bus during snow weather than other days.
4. Rain has no significant effect to the number of passenger.
5. Busy time: around 12 at noon and 5:00 PM.
6. Less passenger: after 8th week, especially at final's week.

## Solution

1. Add more bus during 11:00 AM – 1:00 PM.
2. Add more bus in snow weather.
3. Less bus after 8th week.