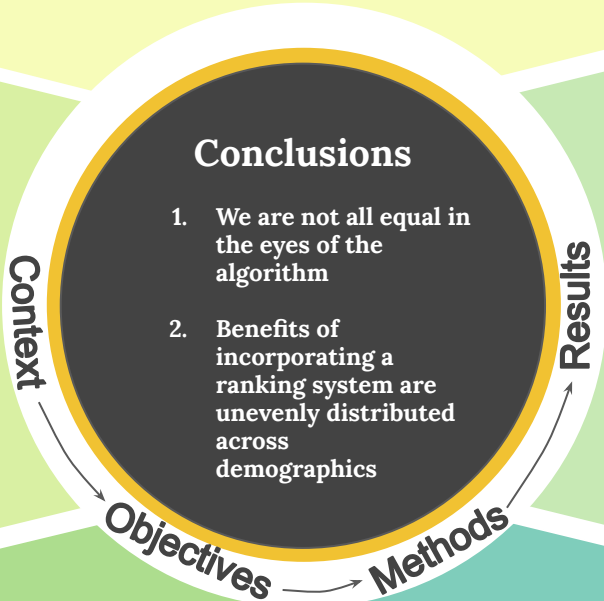
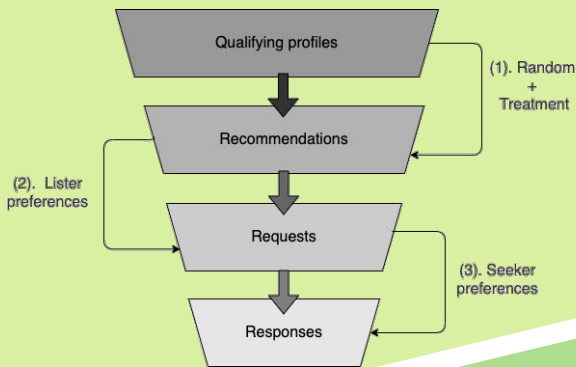


Comparing equity and effectiveness of different algorithms in an application for the room rental market.

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- Real use case: room-rental app
- Two-sided market: room owners and room seekers
- Within-subjects A-B testing in place
- 6 ML-based ranking models
- Dataset with >4M rows



Conclusions

1. We are not all equal in the eyes of the algorithm
2. Benefits of incorporating a ranking system are unevenly distributed across demographics

Inequalities of performance observed at different levels:

1. **Inequalities in the recommendations**
Measured using utility of rankings for listers and exposure for seekers.
2. **Disparities in the requests**
Quantified in terms of conversion rate for listers and click-through rates for seekers.
3. **Disparities in the answers: Inequality of incomes**
No income difference is identified as direct effect of any of the deployed ML-models

- Comprehensive fairness assessment
- Multi-stakeholder view point

- Identification of potentially disadvantaged groups
- Selection of effectiveness and disparity metrics
- Computation of relevant metrics for each stage
- Comparative analysis of treatment and control settings across groups