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| Problem Statement | Evaluating the success of city of cultures requires accurate insights into crowd engagement, however, current methods rely on subjective feedback/ sparse quantitative data. Advanced deep learning methods are needed to measure crowd participation and event impact. |
| Data availability | Main source of dataset: Images sourced from events.  Other sources of data: public datasets like Shangai Tech dataset A & B. |
| Stakeholders | BD25 Evaluation team: set the requirement and expected deliverables of the project.  Prof. Daniel Ciprian: supervise the development of the model. |
| Deliverables/ Outcomes | Deliver a machine learning model capable of accurately performing crowd counting using density maps and object tracking mechanism. |
| Opportunities of the project | This project offers opportunities for event management through accurate crowd analysis. |
| Limitations/Challenges | The challenge of this project includes and is not limited to data availability, scene/ illumination challenges, crowd density and occlusions (Khan et al. 2023). |
| Domain knowledge | We have knowledge about computer vision and building machine learning models although not in the context of crowd engagement. We plan to do some research on the theoretical and technical frameworks involved in crowd engagement and analysis. |
| Research Methodology | The research methodology of the project involves qualitative research where grounded theory approach would be utilized to develop theories by thematic analysis of secondary sources of data (e.g, journals, articles, web pages, etc) (Bhandari 2020). |