

Exploring Mobile UI Layout Generation Using Large Language Models Guided By UI Grammar



Yuwen Lu (ylu23@nd.edu)¹ Ziang Tong¹, Qinyi Zhao², Chengzhi Zhang³, Toby Jia-Jun Li¹

¹University of Notre Dame ²Fudan University ³Carnegie Mellon University

KEYWORDS

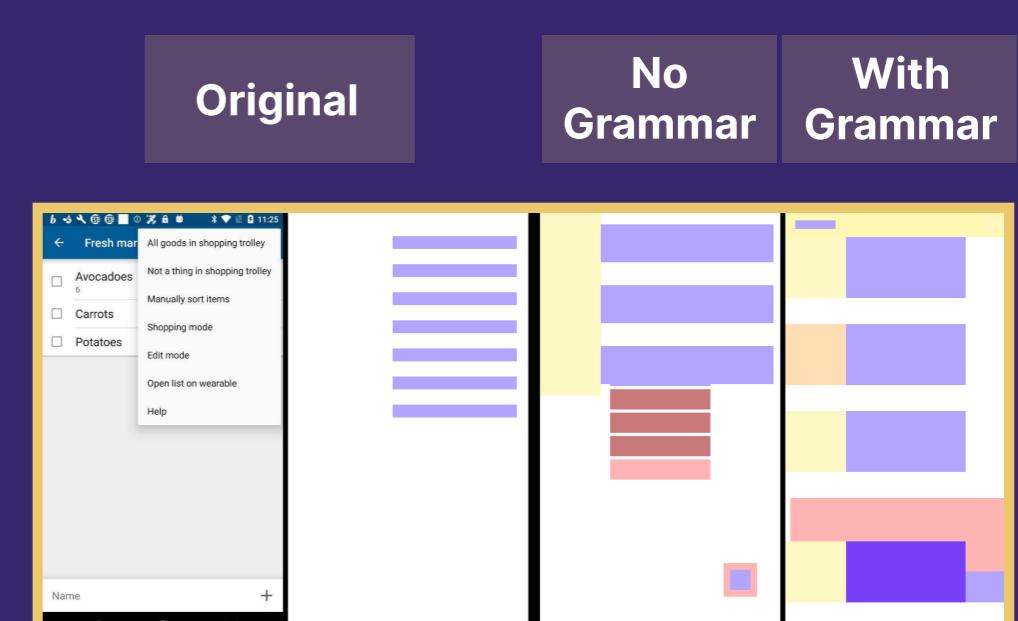
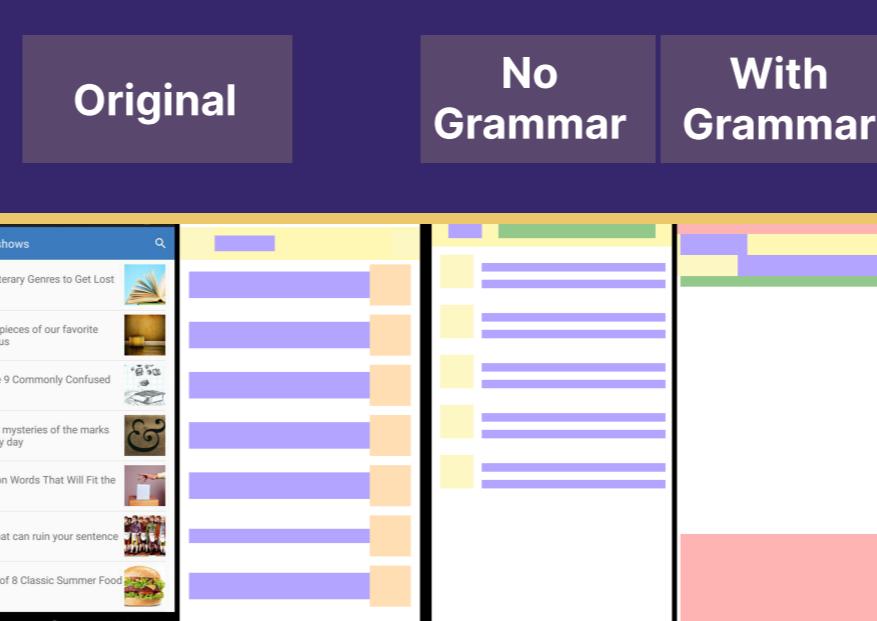
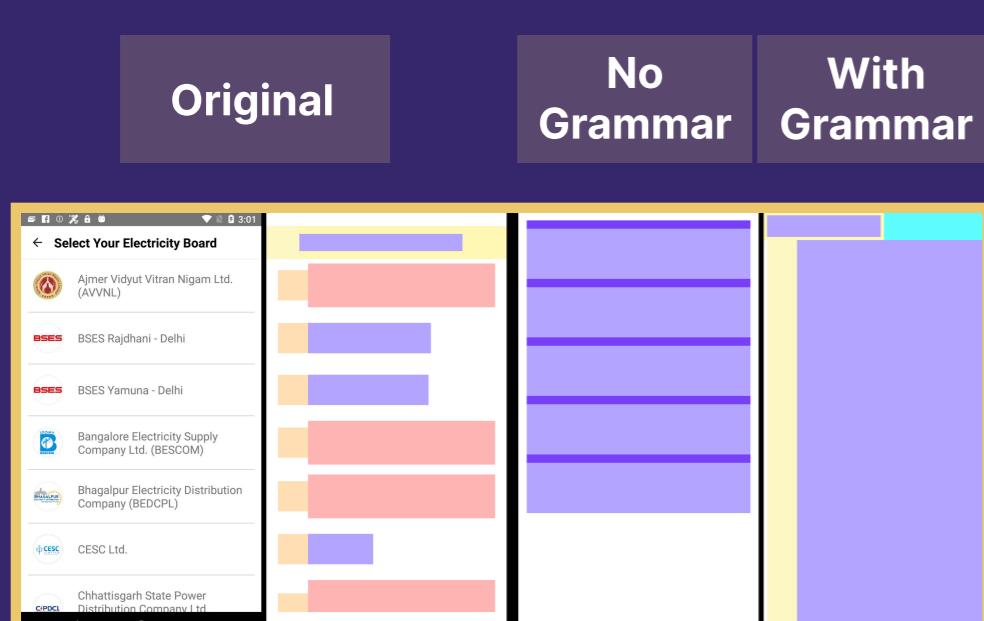
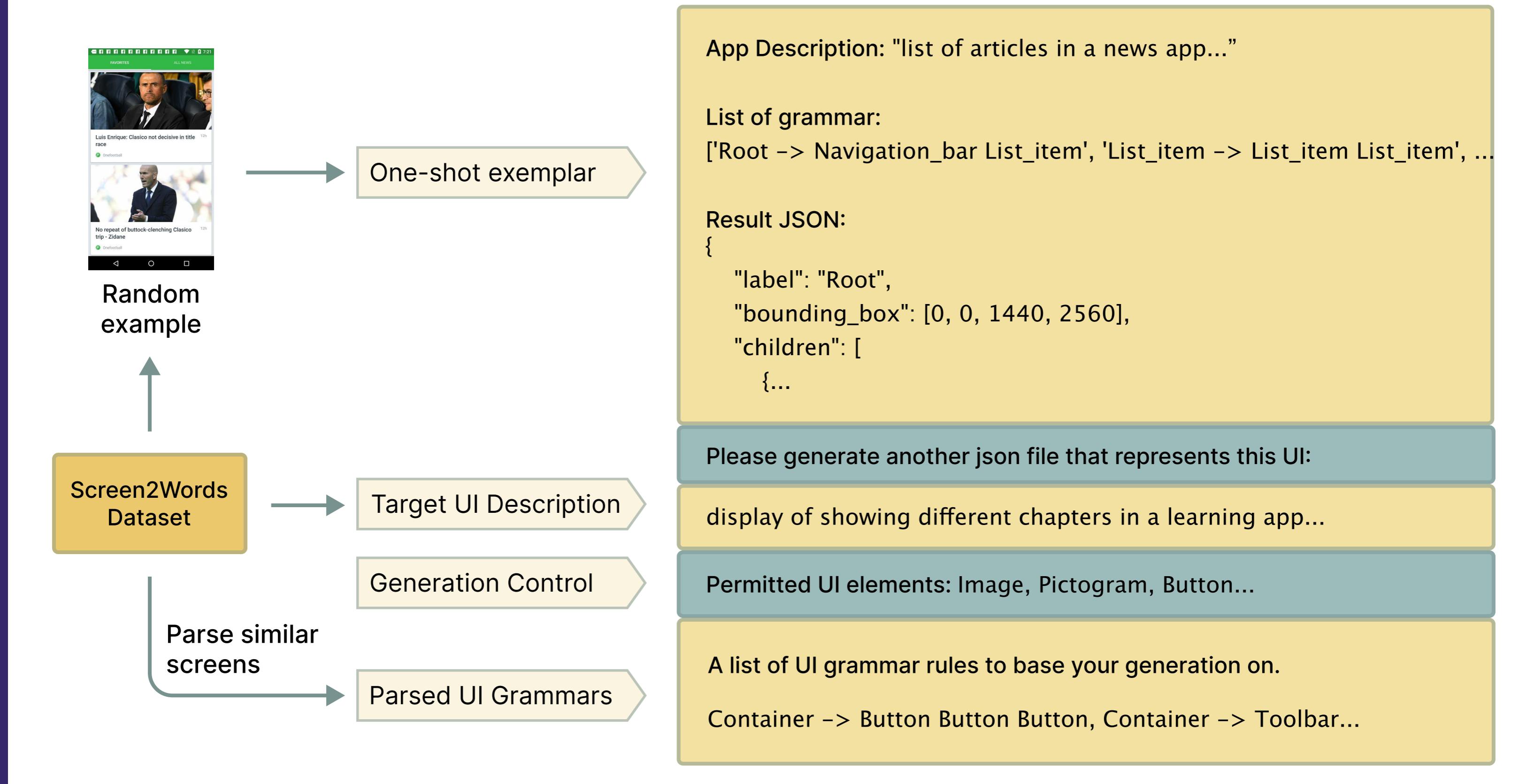
Mobile UI Layout Generation
Large Language Models
UI Grammar
UI/UX Design Support

BACKGROUND

UI Layout Generation

- Important in UI generation, esp. with design systems
- Many model architectures have been investigated
- LLMs show abilities to understand and generate UIs

PROMPT DESIGN



EVALUATION

	MaxIoU ↑	Overlap ↓	Alignment ↓
GPT-4 no grammar	0.29	8.14	0.00
GPT-4 with grammar	0.34	12.47	0.00
Real Data	—	8.58	0.00

Table 1. Quantitative comparisons of our 2 approaches and real data from CLAY

FUTURE DIRECTIONS

1. Improved user control and explainability with LLMs
2. High-fidelity UI generation and human evaluation
3. Interactive Application for UI Design Support