

Software development using low-code programming systems is increasingly popular. Traditional low-code development systems that provide UI creation functionality primarily provide the UI-to-data approach, where developers create user interface elements before populating them with data. However, the data-to-UI approach, where the development process begins with concrete data that drives the creation of corresponding UI elements, remains unexplored as a primary development method. We present the InterfaceSmith prototype programming system, which implements data-to-UI as the primary development method for creating web applications' UI elements. We demonstrate how this data-driven approach enables incremental UI creation through a hole-based approach, where the system creates a UI skeleton using holes as placeholders that developers can incrementally replace with automatically generated UI elements based on the underlying data. The system aims to aid developers in modifying the interface through context menus and generates applications following the Elm architecture. Our evaluation through benchmarks, including a TO-DO list application and tasks from the 7GUIs benchmark suite, demonstrates the system's effectiveness in reducing the amount of code developers need to write while maintaining the ability to implement custom web application functionality.