INTERNATIONAL ISLAMIC UNIVERSITY, ISLAMABAD
DEPARTMENT OF SOFTWARE ENGINEERING

COURSE: SE302 Software Construction and Development

PRESENTED TO: Ms. Maryam Amin

Module: 01

Virtual Interior Designer

BY:

Hajira Gul (4454-FOC/BSSE-F22-A)

Project Title – Virtual Interior Designer

Hajira Gul (4454-FOC/BSSE-F22-A)

Project Description:

The **Virtual Interior Designer** is an AI-powered web application that helps users redesign their living spaces by providing **personalized interior design suggestions** based on uploaded images. Using **computer vision and AI**, the system analyzes image dimensions, lighting, furniture, and color schemes to generate tailored design recommendations.

Existing Platforms:

1. **Modsy** – Provides 3D room renderings with AI-powered design suggestions based on user-uploaded photos. However, it mainly offers pre-selected furniture and styles, limiting customization. It also lacks real-time interactive customization options for users.
2. **Havenly** – Connects users with professional interior designers for personalized advice. While effective, it relies on human input, leading to longer wait times and higher costs. The AI assistance is minimal, making it less automated compared to fully AI-driven systems.
3. **Planner 5D** – A DIY 2D and 3D home design tool with a large furniture library. However, it lacks AI-driven recommendations, requiring users to manually design their spaces. It is more of a visualization tool than an intelligent design assistant.

Unique Features of Virtual Interior Designer:

Feature	Virtual Interior Designer	Modsy	Havenly	Planner 5D
AI-Driven image Analysis	✔ Detects room layout, lighting, and colors from images	✔ Limited	✘	✘
Personalized Design Suggestions	✔ AI suggests styles based on user preferences	✔ Limited styles	✔ Human Designer-driven	✘
Interactive Design Customization	✔ Swap furniture, modify layouts, change colors	✘	✘	✔ Manual but not AI-assisted
Smart Shopping & Budgeting	✔ Recommends furniture from multiple retailers	✔ Limited to partnered brands	✔ Designer-based choices	✘
Social & Sharing Features	✔ Share designs for feedback	✘	✘	✘
Space Functionality Optimization	✔ AI adapts designs based on space type (indoor, outdoor, etc.)	✘	✔ Designer input	✘
Wall & Flooring Recommendations	✔ AI suggests textures, wallpapers & flooring	✘	✔ Designer Based	✘

Scope:

The **Virtual Interior Designer** is an AI-powered web application that enables users to design and optimize their interior spaces through **image analysis**, **personalized AI-generated suggestions**, and **interactive customization**. Users can upload images, receive tailored design recommendations, modify layouts in real time, and get budget-friendly furniture suggestions from multiple retailers. The system also offers **wall and flooring recommendations**, **space functionality optimization**, and **social sharing for feedback**. Unlike existing platforms, it integrates **AI-driven cost optimization**, **multi-retailer shopping**, and **real-time customization**, making interior design more accessible, efficient, and user-friendly. The system does not include physical furniture purchasing, in-person consultations, or advanced architectural modifications, focusing solely on virtual design, recommendations, and cost estimation.