**Project Proposal: NepalCraft - Celebrating Heritage Through AI and Collaboration**  
**Module: CMP/DIG6200 Individual Undergraduate Project**  
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NepalCraft Project Proposal for CMP/DIG6200

**1 Introduction**

**1.1 Background and Rationale**

Nepal is famous for its rich heritage of craftsmanship, which holds significant cultural value and includes detailed wood carvings, handloom Dhaka textiles, metalwork, and items made from lokta paper. Representing centuries of craftsmanship, these heritage crafts support local livelihoods and Nepal's identity. Nepal's exports of handicrafts like carpets, pashminas, and other textiles have recently hit all-time highs and comprise a significant percentage of the nation's trade, indicating the handicraft industry's very tangible economic influence at a global level. Most artisans, nevertheless, must contend with problems like poor market access, reproduction competition, and the necessity for sustainable development. If the customers can be led to believe that these products are authentic and of high quality, digitally transporting these artisans to an international market can increase sales and help maintain cultural heritage.

Global e-commerce will amount to trillions of dollars, and shoppers are demanding more personalized and reliable shopping experiences. However, many of Nepal's traditional artisan vendors lack the technology to deliver those experiences. Meanwhile, fraud and customer distrust are growing concerns for online marketplaces. NepalCraft will leverage AI-driven personalization to improve user experience and provide product recommendations to counter this. To establish trust and connect with consumer values, cultural storytelling—that which emphasizes the history, craftsmanship, and ethical values that go into every product—is equally vital. NepalCraft will be a reliable online marketplace where customers from around the world can find, customize, and securely buy genuine Nepalese products by combining innovative technology solutions with rich cultural storytelling. The conservation of cultural heritage and economic empowerment of artisans promoted by this initiative are aligned with wider sustainable development objectives.

**1.2 Key Themes and Topics**

This project touches on a number of important topics:

**Digitization of cultural heritage:** Nepal's tangible and intangible heritage (such as UNESCO sites, traditional crafts, and folklore) and its digital preservation through databases, 3D scanning, and multimedia storytelling.

**AI-Driven Personalization:** Algorithmically customizing the browsing and buying experience. To help customers find appropriate crafts, NepalCraft will offer a cultural personality quiz that constructs a user profile based on characteristics and interests (e.g., festival preference and interior design style). Browsing history will also inform dynamic recommendations. Previous research demonstrates that quiz-based recommendation systems can be used to enhance user satisfaction and engagement, particularly for novice users. This concept is taken further in the context of heritage-commerce by NepalCraft.

**Custom "Build-Your-Own" Orders:** This enables direct interaction with artisans, as a supplement to static configurators. Customers can create bespoke products (e.g., a Ganesh statue with silver oxidized details or a Lokta notebook with a special design) digitally and receive immediate feedback and modifications from the craftsman. This is the heart of collaborative traditional craftsmanship, establishes trust, and enriches the story.

**Interactive Technologies (AR/VR):** Not required but we will accept AR/VR functionality (e.g., VR heritage tours and AR demonstrations of crafts) as potential add-ons in light of comparable student projects that bring digital reconstructions over heritage sites. However, due to resource limitations, web and mobile experiences available will be the focus of the deliverables.

**2 Aim and Objectives**

**2.1 Project Aim**

The aim of the project is to create and launch an AI-powered digital platform that supports and safeguards Nepalese cultural heritage by facilitating experiential storytelling, adaptive discovery, and co-creation in real-time between international users and local artisans in the production of handmade goods.

**2.2 Project Objectives**

**1. Learn about the craftsmanship and associated technology of Nepal.**

Discover the traditional arts such as metal statues, Thangka paintings, and Dhaka cloth along with modern applications of artificial intelligence for cultural preservation and personalization.

**2. Develop a platform architecture to support user-artisan collaboration and AI-driven personalization.**

Arrange the technology tools, user journeys, information flows, and system components to compose the NepalCraft experience.

**3. Create an AI-based recommendation system along with a cultural personality test.**

Create a questionnaire that associates personal interests with Nepali handicrafts and cultural topics, and then use browsing history to improve recommendations incrementally.

**4. Create a feature to allow users to collaborate on bespoke orders.**

Allow users to interact with artists directly and co-design crafts (e.g., select material, size, and theme) while receiving platform-based progress updates.

**5. Ensure there is openness and cultural authenticity.**  
Every product should have artisan profiles, stories of origin, and price breakdowns to facilitate cultural connections and trust.

**6.** **Develop an operational NepalCraft platform prototype.**  
Develop an effective frontend and backend that integrates functionalities for personalization, browsing, and customization.

**7. Evaluate the platform by engaging users and examining its performance capabilities.**  
To determine the usability, satisfaction, and cultural impact of the platform, collect user and artisan feedback. Then, implement the necessary adjustments.

**8. Monitor the progress of the project and recommend improvements.**

Maintain thorough documentation of all design choices, technical solutions, and findings from research. Additionally, it would be advisable to provide recommendations on potential avenues for NepalCraft's growth or collaboration with cultural organizations.

**3 Project Planning**

**3.1 Initial Project Plan**

The project will be carried out as outlined in the subsequent sections, with interconnected activities in successive phases:

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| Timeframe | Task/Subtasks |
| Month 1-2 | Background research: develop the idea further, discuss with the supervisor, read literature, interview experts (historians, artisans), and identify system requirements. |
| Month 3-4 | Design phase: Sketch the UI and architecture. Gather datasets (photos of crafts, metadata). Determine your toolset (web stack, ML framework). Create initial sketches or mockups. |
| Month 5-7 | Development: AI core Install and train AI modules, such as recommenders and pattern generators. Preprocess data and tune algorithms. |
| Month 7-9 | Platform for Development: Construct front-end and back-end. Incorporate AI modules. Incorporate content pages (craft galleries, interactive stories, etc.). |
| Month 10-11 | Collaborative features: Establish user accounts, commenting, and content uploading. Pilot-test with pilot users (e.g., Nepalese community, peers). If possible, start prototyping AR and VR. |
| Month 12 | Evaluation and Improvement: Conduct usability testing, gather feedback, troubleshoot issues, and maximize efficacy. Complete the system and prepare the demonstration. |
| Ongoing | Communication and Documentation: Keep a record of progress on a weekly basis. Maintain updated reports and keep the code repository updated. |

**3.2 Resources Required**