**System Design Document for UENR Beads**

**Introduction**

This document outlines the design of a comprehensive ERP system for **UENR Beads**, a company specializing in the manufacture of beads, jewelry, and beaded accessories. The system is intended to integrate various business processes, enhance operational efficiency, streamline workflows, and support data-driven decision-making, particularly tailored to the needs of a business in the artisanal and craft sector.

**System Architecture**

* **Architecture Overview**: The ERP system will employ a modular architecture with a centralized database, connecting all critical modules such as Inventory Management, Production Planning, Sales, Purchasing, Finance, HR, and Reporting. The architecture will support the unique requirements of the bead and jewelry manufacturing process.
* **Data Flow**: The system will handle different categories of products, including raw beads, finished jewelry, and beaded accessories. The data flow will ensure seamless integration between design, production, inventory, and sales.

**Module Specifications**

1. **Inventory Management**:
   * **Beads**: Track various types of beads (glass, metal, wood, etc.) by size, color, and quantity. Set reorder levels based on production needs and sales trends.
   * **Jewelry and Accessories**: Manage finished goods inventory, including necklaces, bracelets, and other beaded items, ensuring accurate stock levels and visibility into popular products.
   * **Reports**: Generate detailed inventory reports that distinguish between raw materials and finished goods, providing insights into material usage, stock turnover, and reorder points.
2. **Production Planning and Control**:
   * **Design and Prototyping**: Schedule and track the development of new jewelry designs, ensuring timely availability of materials and alignment with market trends.
   * **Manufacturing**: Manage the production process from bead selection to assembly, ensuring quality control at each stage. Track labor hours, production output, and efficiency.
   * **Scheduling**: Optimize production schedules based on demand forecasts, resource availability, and seasonal trends, such as peak sales periods for jewelry.
3. **Sales and Order Processing**:
   * **Order Management**: Handle both custom orders and bulk sales, with automated order entry, invoicing, and shipping coordination. Track order status in real-time, from receipt to delivery.
   * **Customer Segmentation**: Maintain detailed customer profiles, including preferences for specific types of jewelry or accessories, enabling personalized marketing and customer service.
4. **Purchasing and Supplier Management**:
   * **Supplier Database**: Manage relationships with suppliers of raw beads, metals, and other materials. Track lead times, purchase order status, and supplier performance.
   * **Order Tracking**: Ensure timely procurement of materials, with automated reordering based on inventory levels and production schedules.
5. **Finance and Accounting**:
   * **Cost Allocation**: Allocate costs for raw materials, labor, and overheads, ensuring accurate cost tracking for each product line.
   * **Financial Reports**: Generate detailed financial statements that reflect the profitability of different product categories, aiding in strategic planning and budgeting.
6. **Human Resources Management**:
   * **Employee Records**: Maintain detailed records for artisans, designers, and production staff, including skills, certifications, and performance metrics.
   * **Payroll Processing**: Automate payroll based on production output, hours worked, and performance bonuses, ensuring fair compensation aligned with business goals.
7. **Reporting and Analytics**:
   * **Custom Dashboards**: Provide real-time analytics tailored to UENR Beads, such as sales trends, inventory turnover, production efficiency, and profit margins.
   * **Key Performance Indicators (KPIs)**: Track KPIs that reflect the performance of the business, including production lead times, sales conversion rates, and customer satisfaction.

**Integration Capabilities**

* **Existing Systems**: The ERP system will integrate with existing design and manufacturing software, allowing for seamless data transfer and unified operations across departments.
* **Data Import/Export**: The system will support CSV imports and exports, facilitating data entry, reporting, and external analysis, compatible with UENR Beads' current tools and practices.

**Security Measures**

* **Data Encryption**: Encrypt sensitive data, including customer information, financial records, and design files, to protect against unauthorized access.
* **User Authentication**: Implement multi-factor authentication (MFA) for access to critical modules, such as production planning and financial management.
* **Access Control**: Use role-based access control (RBAC) to restrict access based on employee roles within the organization, ensuring data privacy and security.

**Scalability**

* **Future Growth**: The system is designed to scale as UENR Beads expands its operations, introducing new product lines or increasing production capacity. Additional modules can be seamlessly integrated, and the database architecture will support growing data volumes.