



Republic of the Philippines
Department of Education
NATIONAL CAPITAL REGION

SUBJECT : BID BULLETIN NO. 1

PROJECT : PROCUREMENT OF SERVICE PROVIDER FOR
SETTING-UP OF COMPREHENSIVE LEARNING
RESOURCES PORTAL FOR DEPED NCR {from
COMPREHENSIVE SOFTWARE DEVELOPMENT (LR
PORTAL)}
PB CLMD 2025-001 & PHILGEPS REF. NO. 1643489

DATE : January 13, 2025

This Bid Bulletin No. 1 is hereby issued for the information of prospective bidders in the above-mentioned project.

- 1. The project title shall be modified as follows, "PROCUREMENT OF SERVICE PROVIDER FOR SETTING-UP OF COMPREHENSIVE LEARNING RESOURCES PORTAL OF DEPED NCR".*
- 2. The Technical Specifications shall be referred to the attached document.*

Let copies of this Bid Bulletin be posted in the PhilGEPS, Website and Bulletin Board reserved for the BAC and be furnished all the prospective bidders, invited observers and the Office of the COA.


CRISTITO A. ECO
BAC Chairperson

TECHNICAL SPECIFICATIONS

Setting-Up of Comprehensive Learning Resources Portal for DepEd NCR

1. Front-End Data Visualization Website

Objective

To create an intuitive and interactive website that allows DEPED-NCR administrators, educators, and stakeholders to visualize key educational data, facilitating informed decision-making and policy formulation.

Technology Stack

- **Frontend Framework:** WordPress (PHP-based Content Management System)
 - **Data Visualization Libraries:** Chart.js, D3.js, or Highcharts (JavaScript libraries)
 - **Backend:** PHP (WordPress core), with custom plugins as needed
 - **Database:** MySQL or MariaDB (managed by WordPress)
 - **APIs:** RESTful APIs for data integration
 - **Hosting:** Cloud-based servers (AWS, Google Cloud, or DigitalOcean)
 - **Version Control:** Git and GitHub or GitLab
 - **Continuous Integration/Deployment (CI/CD):** Jenkins or GitHub Actions
 - **Monitoring Tools:** New Relic or Google Analytics
-

Key Components

1. **Custom WordPress Theme:** Tailored to DEPED-NCR branding with responsive design for mobile and desktop users.
 2. **Data Management Plugin:** A custom WordPress plugin to handle data import, processing, and storage.
 3. **Interactive Dashboards:** Pages displaying various graphs and charts, with filtering and sorting capabilities.
 4. **User Roles and Permissions:** Different access levels for administrators, data analysts, and general users.
 5. **Search Functionality:** Advanced search to locate specific data points or reports.
-

Core Features

- **Interactive Graphs and Charts:** Visualization of enrollment data, student ages, locations, and other metrics.
 - **Data Filtering and Sorting:** Users can filter data by region, school, year, or other relevant criteria.
 - **Real-time Data Updates:** Automatic syncing with data sources to ensure the latest information is displayed.
 - **Responsive Design:** Optimized for various devices, including desktops, tablets, and smartphones.
 - **Multi-language Support:** Option to display content in multiple languages if required.
-

Data Sources

- **DEPED Regional Databases:** Integration via RESTful APIs to fetch real-time data.
 - **CSV/Excel File Uploads:** Manual data uploads by administrators for datasets not available through APIs.
 - **External APIs:** Integration with other educational data providers if necessary.
-

Implementation Details

- **Data Integration:**
 - **API Integration:** Set up secure API connections to DEPED regional databases.
 - **Data Validation:** Implement validation rules to ensure data integrity during import.
 - **Custom Plugin Development:**
 - **Data Import Module:** Allows admins to upload CSV/Excel files.
 - **Data Processing Module:** Transforms raw data into formats suitable for visualization.
 - **Cache Management:** Implement caching strategies to improve performance.
 - **Frontend Development:**
 - **Theme Customization:** Develop a child theme based on a stable parent theme.
 - **Visualization Components:** Use JavaScript libraries to create interactive charts.
 - **Responsive Design:** Ensure the website is mobile-friendly.
-

Endpoints

- **Data Retrieval APIs:**
 - GET /api/data/regions: Fetch data for all regions.
 - GET /api/data/regions/{region_id}: Fetch data for a specific region.
 - GET /api/data/schools/{school_id}: Fetch data for a specific school.

- **Data Management APIs:**
 - POST /api/data/upload: Upload new data via CSV/Excel.
 - PUT /api/data/update/{data_id}: Update existing data entries.
 - DELETE /api/data/delete/{data_id}: Remove data entries.
 - **Authentication APIs:**
 - POST /api/auth/login: User login.
 - POST /api/auth/logout: User logout.
-

Development Workflow

1. **Planning and Requirement Analysis:**
 - Gather detailed requirements from DEPED-NCR stakeholders.
 - Define project scope, milestones, and deliverables.
 2. **Design Phase:**
 - Create wireframes and mockups for the website.
 - Design database schemas and API structures.
 3. **Development Phase:**
 - Set up development environments.
 - Develop custom WordPress theme and plugins.
 - Implement frontend components using JavaScript libraries.
 4. **Testing Phase:**
 - Unit Testing: Test individual components for functionality.
 - Integration Testing: Ensure all components work together seamlessly.
 - User Acceptance Testing: Collect feedback from DEPED-NCR representatives.
 5. **Deployment Phase:**
 - Prepare production environment.
 - Migrate the website to the live server.
 - Perform final testing.
 6. **Maintenance and Support:**
 - Monitor performance and fix bugs.
 - Provide training to DEPED-NCR staff.
-

Security Considerations

- **Data Encryption:** Use HTTPS/SSL for all data transmission.
 - **Authentication and Authorization:** Implement robust user authentication with role-based access control.
 - **Input Validation:** Protect against SQL injection and cross-site scripting (XSS) attacks.
 - **Regular Updates:** Keep WordPress core, themes, and plugins updated.
-

Performance Optimization and Scalability

- **Caching Mechanisms:** Implement server-side caching and use caching plugins.
 - **Content Delivery Network (CDN):** Use CDNs to serve static assets efficiently.
 - **Database Optimization:** Regularly optimize the database and use indexing.
 - **Load Balancing:** Configure load balancers to distribute traffic evenly.
 - **Scalable Infrastructure:** Utilize cloud services that allow scaling resources based on demand.
-

2. eBook System for Remote Learning

Objective

To develop a secure and scalable eBook platform where students can access educational materials remotely, ensuring continuous learning during class suspensions or emergencies.

Technology Stack

- **Backend Framework:** Laravel (PHP)
 - **Frontend Framework:** Blade templating engine or Vue.js
 - **Database:** MySQL or PostgreSQL
 - **Storage:** AWS S3 or Azure Blob Storage for file storage
 - **Authentication:** Laravel Sanctum or Passport for API authentication
 - **APIs:** RESTful APIs for mobile app integration (if needed)
 - **Push Notifications:** Firebase Cloud Messaging or Twilio
 - **Version Control:** Git and GitHub or GitLab
 - **CI/CD:** Jenkins or GitHub Actions
 - **Monitoring Tools:** New Relic, Sentry
-

Key Components

1. **User Management System:**
 - Student Registration and Login
 - Password Recovery
 - Profile Management
2. **Content Management System (CMS):**
 - Uploading and Organizing Educational Materials
 - Categorization by Subject, Grade Level, and Region
 - Version Control for Materials
3. **Access Control:**
 - Role-Based Permissions (Students, Teachers, Administrators)
 - Secure Content Delivery with Pre-Signed URLs
4. **Notification System:**

- Alerts for Class Suspensions
 - Updates on New Materials or Announcements
 - 5. **Analytics Dashboard:**
 - Track Student Engagement and Material Access
 - Generate Reports for Administrators
-

Core Features

- **Secure Student Accounts:** Unique login credentials for each student with email verification and optional two-factor authentication (2FA).
 - **Educational Material Access:**
 - View and download lesson plans, books, and multimedia content.
 - Materials available in various formats (PDF, ePub, Video).
 - **Search and Filter:**
 - Advanced search functionality to find materials by keyword, subject, or grade level.
 - Filters to narrow down content based on various criteria.
 - **Real-Time Notifications:**
 - Push notifications for important updates.
 - In-app messaging for announcements.
-

Data Sources

- **Educational Content:**
 - Uploaded by teachers and administrators.
 - Could include third-party resources with proper licensing.
 - **User Data:**
 - Student information imported from DEPED's student management systems.
 - Compliance with data protection regulations.
-

Implementation Details

- **Authentication and Authorization:**
 - Utilize Laravel Sanctum for API token authentication.
 - Implement RBAC to restrict access based on user roles.
- **File Storage and Delivery:**
 - Store files securely in cloud storage.
 - Use pre-signed URLs to allow temporary access to files.
- **API Development:**
 - Develop RESTful APIs for all functionalities to allow future mobile app integration.
- **User Interface:**

- Responsive design for accessibility on various devices.
 - Intuitive navigation and user-friendly interfaces.
 - **Data Encryption and Security:**
 - Encrypt sensitive data in transit and at rest.
 - Regular security audits and vulnerability assessments.
-

Endpoints

- **Authentication APIs:**
 - POST /api/auth/login: User login.
 - POST /api/auth/logout: User logout.
 - POST /api/auth/register: Register a new user (if allowed).
 - POST /api/auth/password-reset: Password recovery.
 - **User APIs:**
 - GET /api/user/profile: Fetch user profile.
 - PUT /api/user/profile: Update user profile.
 - **Content APIs:**
 - GET /api/materials: Fetch list of materials.
 - GET /api/materials/{id}: Fetch specific material.
 - POST /api/materials: Upload new material (admin/teacher only).
 - PUT /api/materials/{id}: Update material (admin/teacher only).
 - DELETE /api/materials/{id}: Delete material (admin/teacher only).
 - **Notification APIs:**
 - GET /api/notifications: Fetch user notifications.
 - POST /api/notifications: Send notification (admin only).
-

Development Workflow

1. **Requirement Analysis:**
 - Detailed discussions with DEPED-NCR to understand all requirements.
 - Create user stories and use cases.
2. **Design Phase:**
 - System architecture design.
 - Database schema design.
 - UI/UX design with prototypes.
3. **Development Phase:**
 - Backend development using Laravel.
 - Frontend development using Blade templates or Vue.js.
 - API development and documentation.
4. **Testing Phase:**
 - Write unit tests and integration tests.
 - Perform security testing and code reviews.
 - User acceptance testing with a pilot group.

5. Deployment Phase:

- Set up production environment with proper configurations.
- Migrate data and conduct final testing.
- Go-live with monitoring in place.

6. Maintenance and Support:

- Ongoing support for bug fixes and updates.
 - Performance monitoring and optimization.
-

Security Considerations

- **Compliance:** Adhere to data protection laws like the Data Privacy Act.
 - **Secure Coding Practices:**
 - Input validation to prevent SQL injection and XSS attacks.
 - Use prepared statements and ORM features.
 - **Data Protection:**
 - Encrypt sensitive data in the database.
 - Regular backups with secure storage.
 - **Access Control:**
 - Implement RBAC throughout the application.
 - Limit failed login attempts to prevent brute-force attacks.
 - **Regular Audits:**
 - Periodic security assessments.
 - Update dependencies to patch vulnerabilities.
-

Performance Optimization and Scalability Considerations

- **Scalable Architecture:**
 - Design the system to handle increasing loads.
 - Use microservices if necessary.
 - **Database Optimization:**
 - Indexing frequently queried fields.
 - Database replication for read-heavy operations.
 - **Caching Strategies:**
 - Implement caching using Redis or Memcached.
 - Cache frequently accessed data and pages.
 - **Load Balancing:**
 - Use load balancers to distribute traffic.
 - Auto-scaling groups to handle peak loads.
 - **Content Delivery Network (CDN):**
 - Serve static assets and downloadable content via CDN.
-