

## HIGHER EDUCATION COMMISSION

### Higher Education Development in Pakistan (HEDP)

#### Terms of Reference (TORs)

#### Development Lead (High Performance Computing)

Job Title:	Development Lead (High Performance Computing)
Category:	Project Management
Duty Station:	Islamabad
Type of Contract:	Contractual Appointment
Expected Starting Date:	September 2022
Duration of Assignment:	One year extendable till the completion of the project, based on satisfactory performance.
No. of Position(s):	One (01)

#### 1. BACKGROUND:

Higher Education Commission (HEC) is embarking upon the Higher Education Development in Pakistan (HEDP) Project funded by the World Bank. The project aims, among other objectives, to strengthen governance in the higher education sector of Pakistan.

Given the cross-cutting and transformative nature of information technology, HEDP has several activities that aim to leverage IT to improve teaching, learning and research environment in Pakistan.

HEDP is looking for a professional, proficient with advanced IT technologies & infrastructure Development Lead for the development of HEC High Performance Computing.

#### 2. PROJECT DESCRIPTION:

The project supports the implementation of a subset of activities from the Higher Education Commission's (HEC's) Vision 2025, which is in line with the broader development framework for Pakistan as envisaged in the Government's Vision 2025. The project will be implemented over a five-year period of 2019/20 – 2023/24.

In essence the objectives of the project are to support research excellence in strategic sectors of the economy, improve teaching and learning, and strengthening governance, in the higher education sector. More information on HEDP can be found here: <http://projects.worldbank.org/P161386?lang=en>.

### 3. CORE RESPONSIBILITIES:

The Development Lead HPC will be a part of the Project Coordination Unit (PCU) for implementation of Component 3 of the project, and specifically work for the anticipated HEC High Performance Computing to be developed under the project. She/ He will report Project Coordinator, HEDP

#### Job Responsibilities:

- Coordinate with the stakeholders from HEC and HEIs to assess their HPC requirements and develop the requirements document.
- Work with advisory group comprised of HEC and HEIS resources on the design of HPC model.
- Develop technical specification for the procurement of required set up for HPC
- Manage architecture for the business domain ensuring alignment with the organization's information technology working and priorities.
- Prepare HPC setup architectural diagram and guidelines for technical and functional staff working.
- Advise on selection of technological components with regards to processing, data storage, data access, applications development, and systems.
- Coordinate development and working across multiple organizations including HEC, HEIs and research organizations/centers.
- Identify systems and/or applications to improve center functions/processes.

- Develop and implement integration plan for new technology components
- Organize and manage site preparation and its working.
- Aid in the installation and configuration of the new technology
- Implement and able to configure clusters like (slurm, spark, openhpc, Hadoop, dockers swam, xCAT etc) and can be able to run the applications which are relevant to HPC. Examples of application is given below but not limited to (TensorFlow, ArcGIS, Revit, 3D Studio Max, ANSYS, Tekla Structure, MATLAB, CUDA, Maya, SAP2000, Advanced Design Systems (ADS), Eclipse etc.) in the HPC setup to be developed under HEDP.
- Monitor and conduct installations of software releases, patches of the operating system, and third-party utilities with emphasis on overall system security.
- Deploy and maintain cluster for compute and storage networks.
- Improve the quality of service for end users while working with system engineers.
- Participate in the design and implementation of multiple system servers and clusters.

**Key Skills and Competencies:**

- Experience of development / implementation with Angular, Javascript, Java, Angular.js Python, PHP/ MYSQL/ Bootstrap/ Zend or other Frameworks.
- Must-Have Experience on Analyzing existing code, writing new code, testing, debugging, and providing production support
- Skilled with Build, test, review, and ship software for multiple platforms, including suite of APIs and microservices, editorial tools, and web frontends
- Able to Collaborate on the design of system architecture, data models, data flows, schemas, and API contracts
- Must-Have Experience utilizing RESTful APIs, JSON, XML, HL7 and JavaScript understanding (way beyond jQuery)
- Experience with docker, kubernetes is preferred.
- Experience with version control, peer review, and other modern development practices.
- Experience working in the Open stack, Azure, AWS and Google Cloud Services ecosystem is highly desirable.

- Ability to develop for scalability including understanding advanced database issues, clustering, and caching.
- Hands-on ability with advanced database design, query generation, performance tuning and profiling in a high-volume environment
- Experience in implementation and deployment in multi-tier complex environment under different operating systems.

#### 4. MINIMUM QUALIFICATIONS:

##### **Education**

- At least sixteen years of education (Master's degree would be a plus) specializing in ICT/Engineering/Computer Science/Information Management or equivalent.

##### **Work Experience**

- 8+ years of experience in HPC and other related areas. Preference will be given to individuals with experience in implementation of HPC architecture.

\*\*\*\*\*