

**DEPARTMENT OF SCHOOL EDUCATION
GOVERNMENT OF PUNJAB**

**The Project Management Unit (PMU) of the World Bank financed
Punjab Outcomes-Acceleration in School Education (POISE)**

Terms of Reference for hiring
IT Application Architect and Database Expert

1. Basic Details:

- Duty Station: Mohali, Department of School Education (DoSE), Mohali, Punjab.
- Language Required: English, Hindi. Punjabi preferred.
- Date of Commencement: To be notified at the time of selection.
- Duration of Contract: Three years (renewable subject to satisfactory performance and/or validity of the project).

2. Background:

The Government of Punjab (GoP) has prioritized education as a key area for development with an aim to build an inclusive and quality education system for all. There are more than 2.5 million students enrolled in more than 19,000 government schools. The Department of School Education (DoSE), GoP, is preparing the Punjab Outcomes-Acceleration in School Education (POISE) operation to be implemented with assistance from the World Bank, with a Program-for-Results (PforR) financing instrument. The program is a subset of the government program for school education in Punjab Vision 2047. The Program Development Objective (PDO) is to improve the school education outcomes and strengthen the school education system management in Punjab.

The program has four results areas:

Result area 1: Improved foundational learning skills at pre-primary and primary levels.

Result area 2: Improved teacher effectiveness.

Result area 3: Improved school-to-higher education and work transition.

Result area 4: Decentralized and user-centric system of school management.

The DoSE now intends to hire one (1) IT Application Architect and Database Expert to design scalable, high-performance application architectures that would involve creating infrastructure that supports scalability through cloud solutions, containerization, and microservices while ensuring it can handle growing workloads. Key tasks include

managing and optimizing database systems for availability and performance, integrating IT systems for seamless data flow, and implementing security measures to protect data and comply with regulations.

3. Objectives and Scope:

The IT Application Architect and Database Expert will be expected to do the following tasks:

- Drafting of TORs and technical specifications, including of necessary hardware, for external vendors as well as additional manpower required for the implementation of the operation
- Undertaking assessments using relevant standards and/or frameworks to inform design of IT/E-Governance projects.
- Develop and implement infrastructure designs that support the scalability requirements of the applications, including cloud-based solutions, containerization, microservices architecture, and load-balancing strategies. Ensure that the infrastructure can efficiently handle increasing workloads and adapt to changing business needs without compromising performance or reliability.
- Implementing robust security measures at various levels of application architecture, including authentication, authorization, encryption, and secure communication protocols and implementing security measures to protect sensitive data and ensure compliance with regulatory standards.
- Identifying and addressing performance bottlenecks in both applications and databases. Implement optimization techniques to enhance overall system performance and responsiveness.
- Staying updated on emerging technologies and trends in application architecture and database management. Evaluate new tools and methodologies to improve system efficiency and functionality.
- Troubleshooting issues related to applications and databases and providing timely resolution. Collaborate with support teams to address user-reported problems and ensure uninterrupted system operation.
- Prepare and submit periodic status reports of all ongoing IT / e-Governance projects, and related issues to the Project Director.
- Advise concerned officials of the DoSE on the adoption and implementation of various IT/e-Governance Tools.

- Liaise with related personnel to analyze and define the user requirements/ division requirements of IT/e-Governance Solutions and develop the proposals as required.
- Liaise with the World Bank team, other project implementation team members, line departments, educational institutions, training providers, and other stakeholders to establish necessary project coordination and accomplish operational requirements for day-to-day tasks.
- Participate in and/or organize relevant seminars, workshops, consultations etc. as and when required; review the capacity-building requirements of the concerned staff on a regular basis.
- Any other relevant task assigned by the Project Director from time to time.

4. Reporting and Review:

The IT Application Architect and Database Expert will report to the Project Director and work under his/her direct supervision on a day-to-day basis.

5. Educational Qualifications and Experience:

This position requires dynamic, experienced, and analytical professionals with demonstrated experience in managing work with programmatic interventions related to improving school education outcomes. The following are the minimum requirements for applying for this position:

Mandatory:

- B.E. / B.Tech. with specialization in Computer Science / Information Technology or MCA or Masters in Science with specialization in Software Engineering / Computer Science / Information Technology.
- Minimum 10 years of professional experience relevant to the position.

The following qualifications and experiences over and above the mandatory criteria will be provided extra marks:

- Experience of working with the government
- Additional relevant professional experience above the required mandatory criteria.
- Experience of designing/ operating scalable high-performance software solutions, cloud platforms (e.g., AWS, Azure), containerization technologies (e.g.,

Docker, Kubernetes), and database management systems (DBMS) such as MySQL, MS SQL, etc.

- Experience of managing and optimizing database systems to ensure high availability, performance, and data integrity. This includes designing schemas, indexing strategies, and data migration tasks for Integrating various IT systems and applications to ensure seamless data flow and interoperability.
- Certifications relevant to solution architecture such as TOGAF (The Open Group Architecture Framework) Or AWS Certified Solutions Architect /Microsoft Certified: Azure Solutions Architect Expert, or similar.

6. Skills Required:

- Proficiency in designing scalable, reliable, and high-performance software architecture solutions.
- Proficiency in cloud platforms (e.g., AWS, Azure, Google Cloud) and containerization technologies (e.g., Docker, Kubernetes).
- Proficiency in database management systems (DBMS) such as MySQL, MS SQL, etc.
- Understanding of relational and non-relational database concepts.
- Experience in database design, optimization, and data modeling.
- Understanding of microservices architecture patterns and principles.
- Proficiency in containerization technologies such as Docker, Kubernetes, etc.
- Experience in designing and deploying containerized applications.
- Knowledge of security best practices and principles.
- Understanding of authentication, authorization, encryption, and data protection techniques.
- Experience in designing secure architectures and addressing security vulnerabilities.
- Strong analytical and conceptual skills.
- Skills in application architecture design, and optimization.
- Excellent problem-solving skills and attention to detail.
- Strong communication and collaboration skills, with the ability to work effectively in a team environment.

7. Remuneration:

The remuneration for the incumbent would be commensurate with respect to the qualifications and experience. Travel/other expenses if any will be paid as per policy guidelines. The IT Application Architect and Database Expert will be located at the DoSE office in Mohali, Punjab during the contracted period. The position may require some

travel including to district/blocks and local levels within the state of Punjab, as per project requirements.

8. Application Procedure:

For standardisation purposes, candidates will fill in the required information only in the blank MS Word document which will be provided on the website ssapunjab.org. After filling in the required details, the candidate will print the form, sign it, scan it, and convert it into a PDF document. In addition to this, the candidate will share their updated CV. The final document, along with the CV, should be emailed to hr.poise@punjab.gov.in.

No Physical applications will be entertained.

Candidates who meet the above criteria will be shortlisted and invited for a personal interview.