

LKS SMK
Tingkat Nasional Ke-XXV
Tahun 2017



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Tingkat Nasional XXV
2017

Kisi - Kisi

BIDANG LOMBA

IT-Software Application



KEMENTERIAN PENDIDIKAN DAN KEBUDAYAN
DIREKTORAT JENDERAL PENDIDIKAN MENENGAH
DIREKTORAT PEMBINAAN SEKOLAH MENENGAH KEJURUAN
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1. TECHNICAL/COMPETITION DESCRIPTION (TD)

This competition is designed to test specialist users of software applications. The skill involves the ability to:

- Analyze system using database modeling tools and techniques with Entity Relationship Diagram (ERD)
- Use investigation and learning skills to obtain user requirements (e.g., document search and analysis)
- Write a method given the desired behavior (inputs, outputs, pre-conditions and post-conditions).
- Use latest available integrated development environments and identify the strengths and weaknesses of each in software development
- Search for, evaluate and integrate appropriate libraries and frameworks into the software being developed
- Construct database structure and data dictionary
- Use the functionality of the .NET environment to develop the software solution according to requirements specifications
- Use the full potential of SQL Server to store and manage the data for the system to be developed
- Demonstrating the software solution developed to solve sample of business case given
- Presenting the software solution developed in front of the clients to give functional overview of the software.

2. Analysis Technical Description

Dari list technical description di atas, dapat di rangkum menjadi :

1. Work Organization and Management
2. Communication and Interpersonal Skill
3. Problem Solving, innovation and Creativity
4. Analyze and Designing Software Solution
5. Developing Software Solution
6. Testing Software Solution
7. Documenting Software Solution

Generally, those skills are divided into five major module of skill test:

Module	Software
Database Creation and Main Form Development	Microsoft Visual Studio Community Edition 2015, SQL Server Express Management Studio 2014, and SQL server 2014 (Express Edition)

Master Form Development	Microsoft Visual Studio Community Edition 2015, SQL Server Express Management Studio 2014, and SQL server 2014 (Express Edition)
Transaction Form Development	Microsoft Visual Studio Community Edition 2015, SQL Server Express Management Studio 2014, and SQL server 2014 (Express Edition)
ERD Development	Microsoft Visio 2013
Application Development	Microsoft Visual Studio Community Edition 2015, SQL Server Express Management Studio 2014, and SQL server 2014 (Express Edition)

3. DETAIL COMPETITION MATERIAL

Detail material of each module will be explained in this section.

2.1 Database Creation and Main Form Development

- Creating physical model of the database
 - All entities are translated into database objects as instructed in the test project
 - Define the relationship between the entities
 - All the constraint required are implemented to support the system
- Creating Application Main Form
 - Login Form work using existing user data and roles
 - Navigation Form to navigate between form
 - Information Form can show instructed information
 - Showing media on application such as picture / video files

2.2 Master Form Development

- All master form developed can support the business process flow required in the test project
- Database query and connection are working correctly
 - creating connection between application and the database
 - query to display data
 - query to insert data
 - query to update data
 - query to delete data
 - query to search data
 - query to sorting data
- Uploading Files to the Application
- Component Event (Ex, onClick, onChange, etc)
- Date and Time Validation
- DataGridView
- String Function

2.3 Transaction Form Development

- All transaction form developed can support the business process flow required in the test project
- Database query and connection are working correctly
 - creating connection between application and the database
 - query to display data (Join Table, Aggregate, SubQuery, etc)
 - query to insert data
 - query to update data
 - query to delete data
 - query to search data
- Programming logic to solve given requirements
- Date and Time Validation
- Chart Component in .net

2.4 ERD Design and Data Dictionary

- Solve the given case by designing Entity Relationship Diagram (ERD)
- Relationship defining every two participating entities
- Attributes defining the properties of entities
- Cardinality defining number of instance of an entity from a relation that can be associated with the relation
- Providing the Data Dictionary to complement ERD developed.

2.5 Application Development

- Analyst Application
- Solve the given case with application
- Time management

4. COMPETITION SCENARIO

3.1 Opening Day

- Welcome Ceremony
- Technical Briefing
 1. Explanation of Competition rules
 2. Explanation of technical description
 3. Test Project Overview Explanation
 4. Marking Schema
 5. Competitor working place's arrangement
- Familiarization
 1. Hardware PC Client & PC SERVER checking
 2. Software checking
 3. Competition working place checking

3.2 Competition Day 1

No	Schedule	Activity
1.	08:00 – 08.30	Case Explanation
2.	08:30 – 11:30	Database Creation and Main Form Development
3.	11:30 – 12:30	Break and Submission
4.	12:30 – 13:00	Case Explanation
5.	13:00 – 16:00	Master Form Development

3.3 Competition Day 2

No	Schedule	Activity
1.	08:00 – 08.30	Case Explanation
2.	08:30 – 11:30	Transaction Form Development
3.	11:30 – 12:30	Break and Submission
4.	12:30 – 13:00	Case Explanation
5.	13:00 – 16:00	ERD Development

3.4 Competition Day 3

No	Schedule	Activity
1.	08:00 – 08.30	Case Explanation
2.	08:30 – 11:30	Application Development

5. MARKING GUIDELINE

- Marking will be done after each module finished
- Competitor that is capable to finish current module before submission time are permitted to start the next module.
- Competitors are not allowed to revise the submitted module after the submission time.
- Competitors are not allowed to bring any electronic and printed material to competition area.
- Jury is checking based on given check list. One checklist may contain more than one marking components. Missing or incorrect result on one of those components will be assumed as wrong answer.
- Marking Percentage :
 - Database Creation and Main Form Development : 15%
 - Master Form Development : 20%
 - Transaction Form Development : 25%
 - ERD Design and Data Dictionary : 20%
 - Application Development : 20%

6. FACILITIES

5.1 Hardware

The following machines and equipment will be made available to each competitor:

- Computer for each competitor:
 - Intel Core i7 4790, 3.6 Ghz up to 4.0 Ghz,
 - LAN Card, VGA Card min 512 MB
 - Network capabilities of 100Mbps
 - Keyboard, Mouse USB
 - Hard disk 1 TB SATA 7200 RPM
 - RAM Memory 4 GB DDR3
 - Monitor LCD with minimum 18.5”
- File Server
- UPS 1 KW
- Document holder and stationary

5.2 Software

The software used by competitors will be representative of widely accepted International software and may represent several software producers. One important aspect will be the integration potential between the various types of software. This will require a careful check but software of the following kind will be required for each computer system:

- Visual Studio Express Edition 2015
- Microsoft Office Professional 2013
- Microsoft SQL Server Express Edition 2014
- Microsoft SQL Server Management Studio Express 2014
- Microsoft Visio Standard 2013
- PDF Reader
- .(dot) net framework 3.5 and 4.0