



# Sample Test Project

**District / Zonal Skill Competitions**

**Skill- IT Software Solutions for Business**

**Category: Information and Communication Technology**

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# Section - A

## *A. Preface*

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### **Skill Explained:**

The rapid pace of globalization over the past decade has been largely driven by developments in Information and Communication Technology (ICT). IT specialists are increasingly in great demand in several areas, one of which is providing software solutions for businesses.

The development of software solutions to improve business productivity encompasses many different skills and disciplines. Key to these is an awareness of the fast-changing nature of the industry and the ability to keep up with the rapid pace of change.

IT software solution professionals always work closely with clients to modify existing systems or create new systems. They may modify “off the shelf” software and integrate it into the existing systems. They often work as part of a team of software professionals responsible for the requirement specification, system analysis and design, construction, testing, training, and implementation, as well as maintenance of a business software system.

### **Eligibility Criteria (for IndiaSkills 2018 and WorldSkills 2019):**

Competitors born on or after 01 Jan 1997 are only eligible to attend the Competition.

**Total Duration:** 4 Hrs

# Section - B

## B. Test Project

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### DURATION OF TEST

4 hours only

Part 1 is a **desktop application** and Part 2 is a **mobile application** that needs to be developed by the competitor.

The total duration for each test project is **2 hours only**.

The marking system will be **50** points for the mobile application and **50** points for the Desktop Application.

### PAT 1 INTRODUCTION

PART 1 of the Test Project consists of the following documentation/files:

- marathon-skills-testing-data-s1.pdf (Testing data for session 1)
- marathon-skills-database-mysql.sql (SQL script to create tables with data for MySQL)
- marathon-skills-database-mssql.sql (SQL script to create tables with data for Microsoft SQL Server)
- marathon-skills-staff-import.xlsx (Staff, position and timesheet data to import)

In this session, you will be starting the development of the Marathon Skills application and its database. The designer has provided you with some system documentation so that you can build the system according to the client's needs. Take time to look through what has been provided.

Task 1- Create the database, then import the necessary data.

Task 2-Then create the application; the initial steps are to create some of the different windows that will be available to the public users.

Task 3-Testing data has been provided to help you test the system: marathon-skills-2015-testing-data-s1.pdf

### DELIVERABLES

#### 1.1 CREATE THE DATABASE

Create a database using your preferred platform (MySQL/MS SQL Server) on the database server that has been provided for you.

### PART 2 MOBILE APPLICATION DEVELOPMENT

This part of the Test Project uses the following documentation/files:

Marathon-skills-staff-import.xlsx (Staff, position and timesheet data to import)

You are expected to use Visual Studio2017 and Xamarin preferably to build an android application.

You are also allowed to use Android Studio (latest version or one version older) for Part 2 if you are not familiar with Xamarin.

## DURATION OF TEST

2 hours only

## INTRODUCTION

In this session, you will be starting the development of the Mobile application of the Marathon Skills application and its database. The designer has provided you with some system documentation so that you can build the system according to the client's needs. Take time to look through what has been provided.

- Import the data required

-Then create the application; the initial steps are to create some of the different screens that will be available to the public users.

## IMPORTANT INSTRUCTIONS TO THE COMPETITOR

By the end of this session, you will need to have the following deliverables ready to submit so that the Marathon Skills system will be finished on time.

- Make sure that you follow the provided style guide throughout all parts of the system.
- Make sure the logo is displayed on all screens where necessary and as per style guide rules.
- Make sure that you provide appropriate validation and error messages throughout all parts of the system.
- Make sure that all relevant buttons/links are working at the end of the session.
- Make sure that you use appropriate naming conventions for all parts of the system as needed.

## DELIVERABLES

### 2.1 CREATE APPLICATION

Create an mobile application using your Android or Xamarin platform

### 2.2 CREATE "MAIN SCREEN"

Create the main menu of the application as outlined in " Main screen" in the wireframe.

Every window/page of the application that has "**? days ? hours and ? minutes until the race starts**" at the bottom of the screen should automatically update in real-time (new value each second). Calculate the amount of time left until the 1<sup>st</sup> event of Marathon Skills 2015 starts (2015-09-05 06:00).

### 2.3 CREATE “ SPONSOR A RUNNER”

Create the form that allows a public member to sponsor a runner as outlined in “ Sponsor a runner” in the wireframe. All credit card information is to be validated and accepted, but it will not be saved in the database for security reasons. Credit card information will not be sent off to a payment gateway for processing.

All fields are required.

All runners that are registered in an event in the current marathon are displayed in dropdown list as: **LastName, FirstName – BibNumber (CountryCode)**.

Credit card # has to be 16 digits.

Expiry date must be a valid month and year that is after today's date.

CVC is a security code that has to be 3 digits.

Clicking the information icon (i) next to the charity will display the charity's information in a popup/modal window.

The (+) and (-) buttons increase and decrease the sponsorship amount by \$10.

The user can enter a sponsorship amount directly into the textbox rather than using the buttons.

### 2.4 CREATE “SPONSORSHIP CONFIRMATION”

Create the confirmation “thank you” page as outlined in “ Sponsorship confirmation” in the wireframe.

This page displays when a user has successfully sponsored a runner. It confirms the runner, charity and amount sponsored.

### 2.5 CREATE “FIND OUT MORE INFORMATION”

Create the sub-menu as outlined in “ Find out more” in the wireframe.

### 2.6 DISPLAY THE DATA USING API

Create a form to display the data given in API and sort and filter functionality on button click.

The wire frames given are only indicative. You are expected to create your own designs as required.

## Section – C

### C. Marking Scheme

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The Assessment is done by awarding points by adopting two methods, Objective and Subjective.

- Measurement – One which is measurable
- Judgmental - Based on Industry expectations / Standard

Aspects are criteria's which are judged for assessment

Criteria	Mark
Systems Analysis and Software Development	35.00
Development Standards	5.00
System Documentation	5.00
Presentation of Solution	5.00

Aspect - Description	Max Mark
Competitor shows how style guide has been adhered to	0.50
Competitor shows a feature that meets the client's requirements	0.50
Meet Client essential requirements	3.00
All entities considered and defined in Database	1.00
All attributes (fields) considered and defined	2.00
Relationships defined correctly	1.00
Overall design meets the requirement completely	2.00
All attributes (fields) considered and listed	1.00
All data types and field sizes are appropriate	1.00
All other information specified as appropriate (e.g. required, primary/foreign key, etc)	1.00
Specification analysis/interpretation -MAIN SCREEN	4.00
Specification analysis/interpretation - SPONSOR A RUNNER	4.00
Specification analysis/interpretation - SPONSORSHIP CONFIRMATION	5.00
Specification analysis/interpretation - FIND OUT MORE INFORMATION	4.00

Specification analysis/interpretation - DISPLAY THE DATA USING API	5.00
A clear, meaningful naming convention is evident	0.20
Naming convention used throughout the whole project	0.80
Correct use of fonts	0.50
Correct use of colours	0.50
Correct use of logo	0.50
User interface elements are neatly arranged (alignment, sizing, etc)	1.50
Back button appears consistently on all windows (except main menu)	0.30
Logout button appears consistently when appropriate	0.30
Header and title are consistent across all windows	0.40
Is the code commented in a useful way throughout the whole system?	3.00
Are all parts of the system documented in the presentation?	1.00
Are helpful feedback messages (e.g. error, success) given throughout the system?	1.00
PowerPoint presentation documenting entire system	3.00
PowerPoint presentation is professional	2.00
<b>TOTAL</b>	<b>50</b>



## Section - D

### **D. Infrastructure List**

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#### **(Acceptable Pre-Installed software list)**

1. Windows 10
2. Visual Studio 2015/ 2017
3. .NET Framework 4.6/4.7
4. Microsoft SQL Server Express 2014
5. SQL Server Management Studio
6. MySQL 5.7
7. .NET Connector
8. Workbench
9. Microsoft Visio Professional 2016
10. Xamarin (Cross platform development tool for mobile)
11. Android Studio 2.2.3
12. Adobe Reader DC
13. MS Office 2016 (WD,EXL, PPT)
14. Notepad++ 7.3.1

# Section – E

## E. Instructions for candidates

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### General Rules

- Competitor should carry the id proof and birth date proof should reach venue 15 minute before the entry time.
- No Group work is permitted, it's individual competition.
- Module briefing will be for 15 minutes & will be done before the start of competition
- Open communication / Q&A will be conducted after module briefings.
- Module related queries will not be entertained after the start of competition.

### Internet Access Rules

- You will have access to internet per module 10 minute except design Modules, 10 minutes to be utilise at stretch.
- Access will be subject to availability of Internet System
- You cannot copy, write from internet machines to your workstation.
- You are not permitted to use any communication application e.g. Chat, Facebook, WhatsApp etc.

### Infrastructure Rules

- Any hardware failure during the completion may get extra time subject to approval of Jury/Experts.
- Candidates should not carry any devices, cell phones, material at competition desk.

### Rules of competition

- Competitor will be disqualifying for any misbehaviour.
- All the rights of the competition are reverred with State Skill Competition Committee.
- When you have finished the current module, you can proceed to the requirements for the next module.

## Section – F

### F. Health, Safety, and Environment

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- All accredited participants, and supporting volunteers will abide by rules and regulations with regards to Health, Safety, and Environment of the Competition venue.
- All participants, technicians and supporting staff will wear the appropriate / required protective Personnel clothing.
- All participants will assume liability for all risks of injury and damage to property, loss of property, which might be associated with or result from participation in the event. The organizers will not be liable for any damage, however in case of Injury the competitor will immediately inform the immediate organizer for medical attention.
- For any electrical or technical support contact the expert/supervision staff.
- Do not plugin/plugin out any eclectic & electronics connections, seek for assistance.
- Be careful while working on workstation so that feet should not strike to electric board or CPU system.