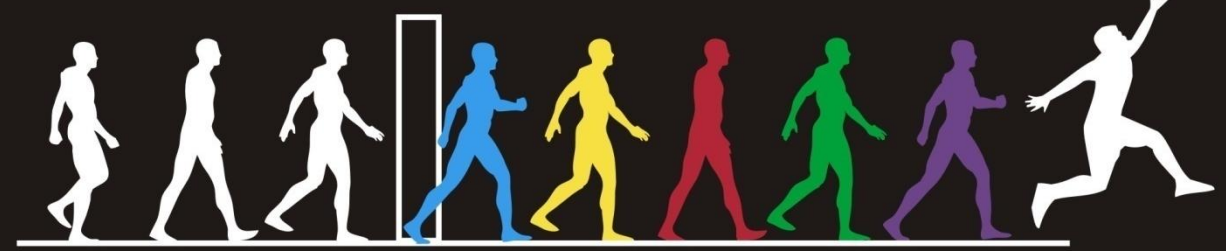
How to make a good Software Requirement Specification(SRS)



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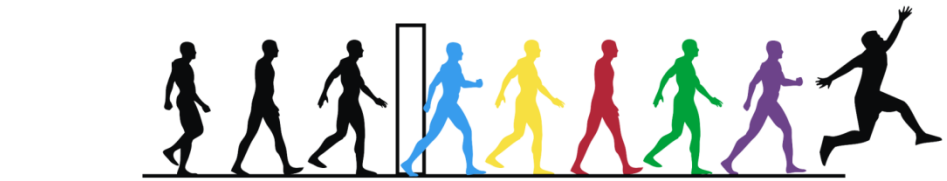
TGMC 2011 Phases

- **Registration**
- **SRS Submission**
- **Project Submission**
- **F2F project presentation**

How to make SRS

- **SRS Format / Template**
- **SRS Sample**
- **SRS Submission Dateline**



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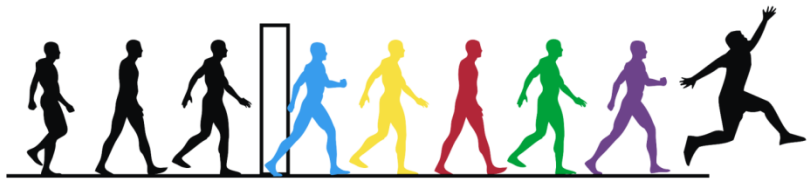
- **A nation-wide software development contest**
- **Target Audience – Engineering Students**
- **Steps:**
  - Create Team - Min 2 Max 4 students & 1 Faculty mentor
  - Choose a project scenario and Register the team in the contest website
  - Attend Awareness sessions & complete the online training
  - Create the project and submit
  - Take home – Prizes, Certificates and recognition!

Whats new with TGMC ‘11

- **New website – on MydeveloperWorks**
- **More technical resources**
- **New project scenarios**
- **Online learning course**
- **Brand Specific scenarios**
- **All Girl Team recognition.**

Topic we will cover…

- **How to make SRS - SRS Format / Template**
  - **Structural Diagrams**
    - Class Diagram
  - **Behavioral Diagrams**
    - Sequence diagram
    - Use case model
    - Activity diagram
  - **Database Diagrams**
    - ER diagram
    - Schema diagram
- **Tools and Technologies**
- **Sample SRS**



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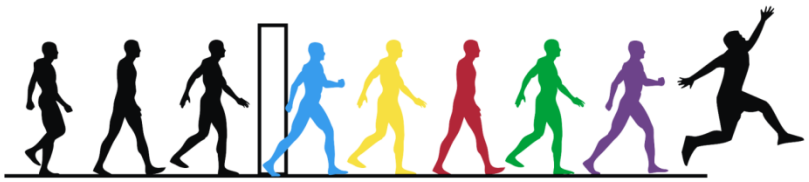
How to make SRS – SRS Format / Template



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< Project scenario name >	Version < X.0>
Software Requirements Specification	<date>
<team name>	

< team Name >

< Scenario Name >

Software Requirements Specification

Version < X.0>

Team Guide: (Faculty Guide's Name)

Members: (Team members name)

College Name:

Department:

State:

<Team Name>/ <College Name>

Revision History

Date	Version	Description	Author
<date>	1.0	Synopsis	<team name>
<date>	2.0	Synopsis	<team name>

Table of Contents

Description

1.0 Introduction

Software Requirements Specification

1.0 Introduction:

1.1 Purpose:

< To describe the purpose of the project >

1.2 Scope: The Scope of the < *Project* > includes:

< Enter the scope of the project >

1.3 Definitions, Acronyms, and Abbreviations:

- HTML (Hyper Text Markup Language): It is used to create static web pages.
- JSP (Java Server Pages): It is used to create dynamic web content.
- J2EE (Java 2 Enterprise Edition): It is a programming platform, belonging to the Java platform, which is used for developing and running distributed java applications.
- WASCE (WebSphere Application Server Community Edition): It is an application server that runs and supports the J2EE and the web service applications.
- WSAD (WebSphere Studio Application Developer): It is a designer toolkit which is designed to develop more complex projects by providing a complete dynamic web service.
- DB2 (IBM Database 2): It is a database management system that provides a flexible and efficient database platform to raise a strong "on demand“ business applications.
- HTTP (Hyper Text Transfer Protocol): It is a transaction oriented client/ server protocol between a web browser and a web server.
- XML (Extensible Markup Language): It is a markup language that was designed to transport and store data.
- Ajax (Asynchronous Java Script and XML): It is a technique used in java script to create dynamic web pages.
- Web 2.0: It is commonly associated with web applications which facilitate interactive information sharing, interoperability, user-centered design and collaboration on the World Wide Web.

1.4 References:

1.5 Technologies to be used:

< Mention the technologies to be used in your project >

Ex :

- **J2EE:** (Servlet, JSP, JAXP, Java Beans) Application architecture.
- **JAVA:** Application architecture.
- **WASCE:** (WebSphere Application Server Community Edition) Web Server
- **DB2:** IBM Database.
- **Ajax:** Asynchronous Java Script and XML.
- **XML:** Extension Markup Language. **Web 2.0:** RSS Feed 2.0.
- **RAD 7.0:** Development tool.
- **Localization:** 3 Languages - Hindi, Kannada, and English

1.6 Overview: The SRS will include two sections, namely:

-I- **Overall Description:** This section will describe major components of the system, interconnections, and external interfaces.

-I- **Specific Requirements:** This section will describe the functions of actors, their roles in the system and the constraints faced by the system.

2.0 Overall Description:

2.1 Product Perspective:

< Enter the product perspective >

2.2 Software Interface:

Front End Client:
Web Server:
Data Base Server:
Back End:

2.3 Hardware Interface:

Client Side:
Server Side:

2.4 Product Functions:.

2.5 User Characteristics:

2.6 Constraints:

2.7 Architecture Design:

2.8 Use Case Diagram :

2.9 Class Diagram:

2.10 Sequence Diagrams:

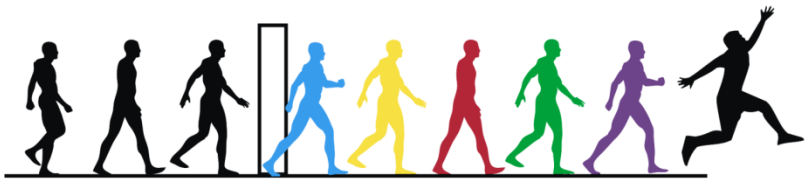
2.10.1 Database Design:
2.10.2 ER Diagram:

2.11 Assumptions and Dependencies:

3. Specific Requirements:

3.1 Use Case Reports:
3.2 Supplementary Requirements:

Class – UseCase – Sequence – Activity – ER Diagrams



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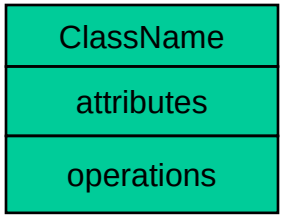
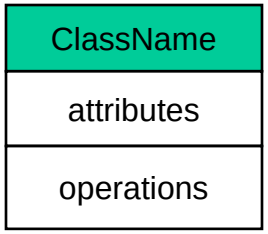
Classes



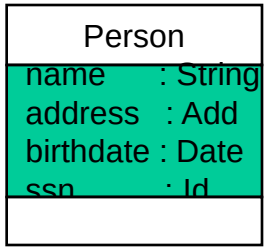
A *class* is a description of a set of objects that share the same attributes, operations, relationships, and semantics.
Graphically, a class is rendered as a rectangle, usually including its name, attributes, and operations in eparate, designated compartments.

Class Names



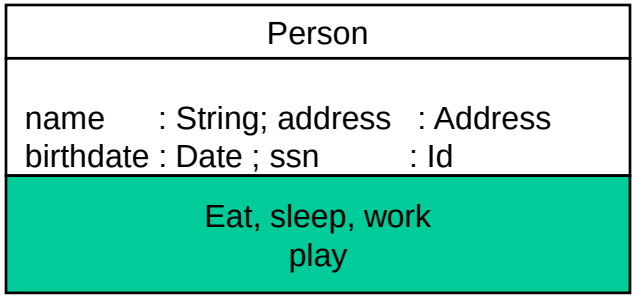
The name of the class is the only required tag in the graphical representation of a class. It always appears in the top-most compartment.

Class Attributes



An *attribute* is a named property of a class that describes the object being modeled. In the class diagram, attributes appear in the second compartment just below the name-compartment.

Class Operations

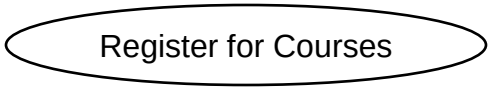


Operations describe the class behavior and appear in the third compartment.

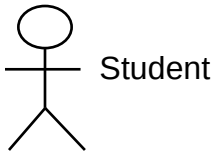
Use Case

"A *use case* specifies the behavior of a system or a part of a system, and is a description of a set of sequences of actions, including variants, that a system performs to yield an observable result of value to an actor."
- The UML User Guide, [Booch,99]

"An *actor* is an idealization of an external person, process, or thing interacting with a system, subsystem, or class. An actor characterizes the interactions that outside users may have with the system."
- The UML Reference Manual, [Rumbaugh,99]



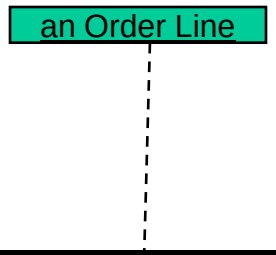
A use case is rendered as an ellipse in a use case diagram. A use case is always labeled with its name.



An actor is rendered as a stick figure in a use case diagram. Each actor participates in one or more use cases.

Sequence Diagram

A *sequence diagram* is an interaction diagram that emphasizes the time ordering of messages. It shows a set of objects and the messages sent and received by those objects.
- The UML User Guide, [Booch,99]



An object in a sequence diagram is rendered as a box with a dashed line descending from it. The line is called the *object lifeline*, and it represents the existence of an object over a period of time.

Activity Diagram

An activity diagram is essentially a flowchart, showing the flow of control from activity to activity.

Use activity diagrams to specify, construct, and document the dynamics of a society of objects, or to model the flow of control of an operation. Whereas interaction diagrams emphasize the flow of control from object to object, activity diagrams emphasize the flow of control from activity to activity. ***An activity is an ongoing non-atomic execution within a state machine.***

- *The UML User Guide, [Booch,99]*

Entity Relationship Modeling (ERM)

A technique used to analyze & model the data in organizations using an Entity Relationship (E-R) diagram.

ERD Development Process

- **Identify the entities**
- **Determine the attributes for each entity**
- **Select the primary key for each entity**
- **Establish the relationships between the entities**
- **Draw an entity model**
- **Test the relationships and the keys**

Entity
an aggregation of a number of data elements each data element is an attribute of the entity

Entity type
a class of entities with the same attributes

Relationship
an association between two or more entities that is of particular interest

Key Attributes

- **Certain attributes identify particular facts within an entity, these are known as KEY attributes.**
- **The different types of KEY attribute are:**
  - Primary Key
    - Composite Primary Key
  - Foreign Key

Key Definitions

- **Primary Key:**
  - One attribute whose value can uniquely identify a complete record (one row of data) within an entity.
- **Composite Primary Key**
  - A primary key that consists of two or more attribute within an entity.
- **Foreign Key**
  - A copy of a primary key that exists in another entity for the purpose of forming a relationship between the entities involved.

ER Diagram Components

Every entity diagram consists of the following components:

Entity (labelled box)

Relationship line

Snapshot of ER Diagram Designing

- Identify the entities
- Determine the attributes for each entity
- Select the primary key for each entity
- Establish the relationships between the entities
- Draw an entity model

Tools & Technologies

Write your Apps using…

- Java Based Technologies
- J2EE – Servlets, JSP, EJBs
- AJAX, JSF, Struts, Portlets / J2ME

Design your backend using …

- DB2 Universal Database v 8.x, v9.x
- DB2 Express – 'C'
- Cloudscape

Design, Develop, Debug and Test your Apps using…

- WebSphere Studio Application Developer 5.1.2
- Rational Application Developer v 6, v7
- Eclipse

Platform of preference – Linux

Deploy / Host your Apps on …

- WebSphere Application Server v6.x , v7.x
- WAS Community Edition
- Apache Geronimo

Maintain your storage (backups / versions) of your Apps using…

- Tivoli Storage Manager Express
- Tivoli directory server

How to submit SRS in dW site -

- **Step 1: Here is the link for the SRS upload form. Click on the link below -**

  https://www.ibm.com/developerworks/mydeveloperworks/profiles/actions/tgmcIndiaUpload.jsp

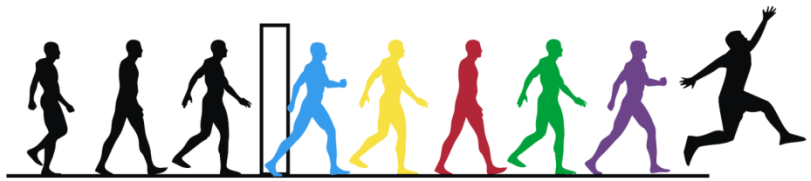
- **Step 2: The team should enter the team name in the team field and click the retrieve college details, the college details is presented as read only text, this will help users makes sure they entered the correct team name. (if College information is not correct, please email ibmtgmc@kestone.in or call toll-free 1-800-425-9366 (Monday-Friday 8 a.m. - 6 p.m.) to get this information corrected)**

- **Step 3: Next step is to upload the SRS document, maximun size is 10MB and the accepted formats are pdf and doc (only).**

- **Step 4: Once uploaded, click on the submit button, the uploaded file is checked against any virus and then emailed to the administrator along with the team details. Each team member will receive a succesful SRS uploaded email as confirmation.**

- **IMPORTANT: If you do not follow the SRS instructions completely, your SRS will not be accepted. Last date for SRS Submissions -- 31st December, 2011. Not more than 2 versions of SRS should be submitted. Revised SRS have to come before last day of SRS submision**

- **Have questions? Call us toll-free at 1800-425-9366.**



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The Great Mind Challenge 2011

Software Requirement Specification

The fields indicated with an asterisk (*) are required to complete this transaction; other fields are optional. If you do not want to provide us with the required information, please use the "Back" button on your browser to return to the previo
the window or browser session that is displaying this page.

Team name: (Team name has to be the same as the name chosen when you registered.)

Retrieve College details

College details:

If the following College details are not correct, please check to make sure you entered your team name correctly.

College:

City:

State:

Country: India

If the above College information is not correct, please email ibmtgmc@kestone.in or call toll-free 1-800-425-9366 (Monday-Friday 8 a.m. - 6 p.m.) to get this information corrected.

Submit your Software Requirement Specification (SRS).
The SRS is the first TGMC phase that needs to be completed. The SRS is one of the most important aspects of your project since it acts as a blueprint for everything that you will do next. Your team should invest quality time and effort on this step beginning any other work.

- The format required for the SRS submission is found in this document: SRS Template.odt (ODT, 22KB) / SRS template.pdf (PDF, 53KB)
- Example of a completed SRS document: SRS Example.pdf (PDF, 1,680KB)

You can view the SRS submission deadline on the Important Dates page.

Upload Software Requirement Specification (SRS): *

Browse...

(accepted formats: .pdf, .doc - Max file size: 10MB)

I affirm that I have permission of each individual listed to provide their contact information for the purposes of this contest and that each individual has read and agrees with the terms and conditions of this contest and IBM's Privacy Statemen

By submitting this form, I agree to the TGMC 2011 Terms and Conditions.

An IBM representative may use the information you have provided to contact you and/or your team regarding TGMC.

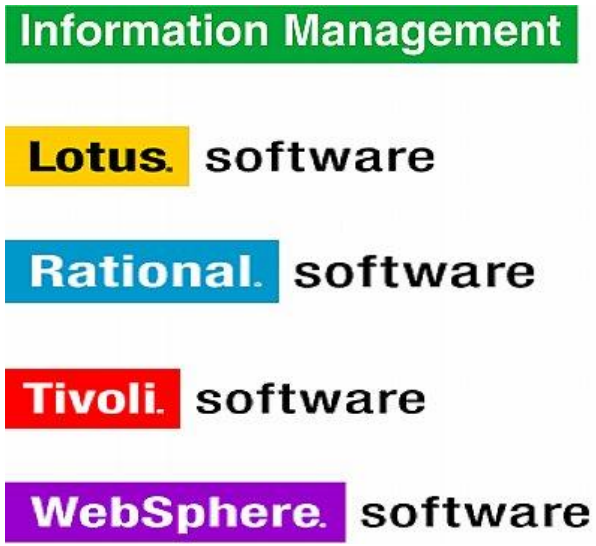
By submitting this form, I agree that IBM may process my data in the manner indicated above and as described in IBM's Privacy Statement.

Submit

If you have problems with the form, please post your questions or issues on the TGMC message board.

Upon processing and submission of your team entry form contest registration, all team members and faculty mentor will receive a confirmation email with additional instructions. If you do not receive this email, please email ibmtgmc@kestone.i
toll-free 1-800-425-9366 (Monday-Friday 8 a.m. - 6 p.m.) for assistance.

For TGMC 2011 Project – Important Guidelines



	To use	Not to use
For Coding	Eclipse, Rational Application Developer (RAD), Rational Software Architecture	Any commercial Eclipse Version and Other Java IDEs
For Application Server	Websphere Application server Community edition and Websphere Application server	Any non - IBM server (Tomcat, Weblogic etc.,).
For Database	DB2, Cloudscape, Derby	Any non IBM databases (Oracle, MS Access etc.,).
For Designing	Use only Rational ROSE	

What makes a good project – Project Submission

- **Should include**
  - A copy of the project scenario
  - A copy of the synopsis that was submitted before
  - Latest version of the Project Synopsis
  - A short presentation strictly less than 10 slides
    - About the team
    - About the tools that were used
    - Understanding of the Project Scenario / Problem Statement
    - About the application that that was created
    - The Key Functionalities/Innovative Features, if any, in the application
    - Highlight if you have used or proposed SOA, XML, Tivoli etc in the complete solution of your application; if you have not used Tivoli you can highlight where it fits during the implementation
    - End user feedback if available (From someone who is not part of the application development team or related to the domain for which the application is created)
  - Proper End-user Help Manual on how to use your application/solution
  - The installation script text file, in which you must specify the step by step process for deploying/running your application in a new machine

Best of Luck.!

- For TGMC contest and Technical queries: tgmc@in.ibm.com
- For SRS submission: Save your SRS in PDF format.
- **Ask your faculty mentor to register at** www.ibm.com/in/university - for all the softwares and e-Books download
- To edit your team profile – editprofile@kestone.in