

# SOFTWARE REQUIREMENTS SPECIFICATION VERSION 2.0

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## TATHVA PAPER SUBMISSION PORTAL

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<<Any comments inside double brackets such as these are *not* part of this SRS but are comments upon this SRS example to help the reader understand the point being made. >>

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## **1.0. Introduction**

### ***1.1. Purpose***

The purpose of this document is to present a detailed description of the Tathva Paper Submission Portal. It will explain the purposes and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli.

### ***1.2. Scope of the Project***

This software system will be the submission portal for papers to be submitted by various users (competitors) during Tathva. This system will be designed to automate most of the steps starting from the paper submission to the end result publication which will come in handy. It will meet the various needs of the competition while remaining inherently easy to understand and use.

More specifically, this system is designed to help the Tathva committee responsible for the particular competition in their various steps including the paper submission, communicating with the competitors, validator(s), judge(s) and also administrator(s). The software will facilitate communication between the competitors, validator(s), judge(s) and administrator(s) through E-mail. Preformatted reply forms are used in every step of the competition. The system also maintains relational database containing a list of competitors, judge(s), validator(s) and administrator(s).

### ***1.3. Glossary***

<b>Term</b>	<b>Definition</b>
Active paper	The paper that is tracked by the system, the paper that may or may not be accepted.
Competitor(User)	Person submitting the paper for competition. In case of multiple persons, this refers to the principal one, with whom all the communication is made.
Database	Collection of all information monitored by the system.
Administrator	The person who updates information, check status and publishes results.
Validation	The report giving the green signal or go ahead showing the acceptance of the paper into the next level of competition. If the validation is negative, then the paper is rejected.
Validator	The person who examines the paper and has ability to recommend approval of a paper into the competition or may reject the paper stating various reasons.
Software Requirement Specification	A document that completely describes all the functions of the software.
Judge	The person who finally evaluates the papers and depending on its merit awards it marks or ranks.

## **1.4 References**

- [1] SRS Example1
- [2] SRS Example2
- [3] SRS IEEE 830
- [4] Umbrello\_ Reference

## **1.5 Overview of the document**

The next section (i.e. section 2) of this document gives the overview of the various functionalities of the system. It also specifies the various informal requirements and is used to establish a context with the technical specification mentioned in the next section. The next section (i.e. section 3-Functional Requirement Section) details the various functionalities to be incorporated into the system in technical and is primarily written for the developers.

Both the sections are used to describe the same software but have been written keeping in mind different audience and hence different languages are used.

## **2.0 Product perspective**

2.0.1 **System interfaces** : Web Browser ( Any latest Web Browser Supported)

2.0.2 **User interfaces**:

- a) The logical characteristics of each interface between the software and its users.
  - b) All aspects of optimizing interface with the person who must use the system.
- Both a , b portions are not yet decided.( Designs are not ready).

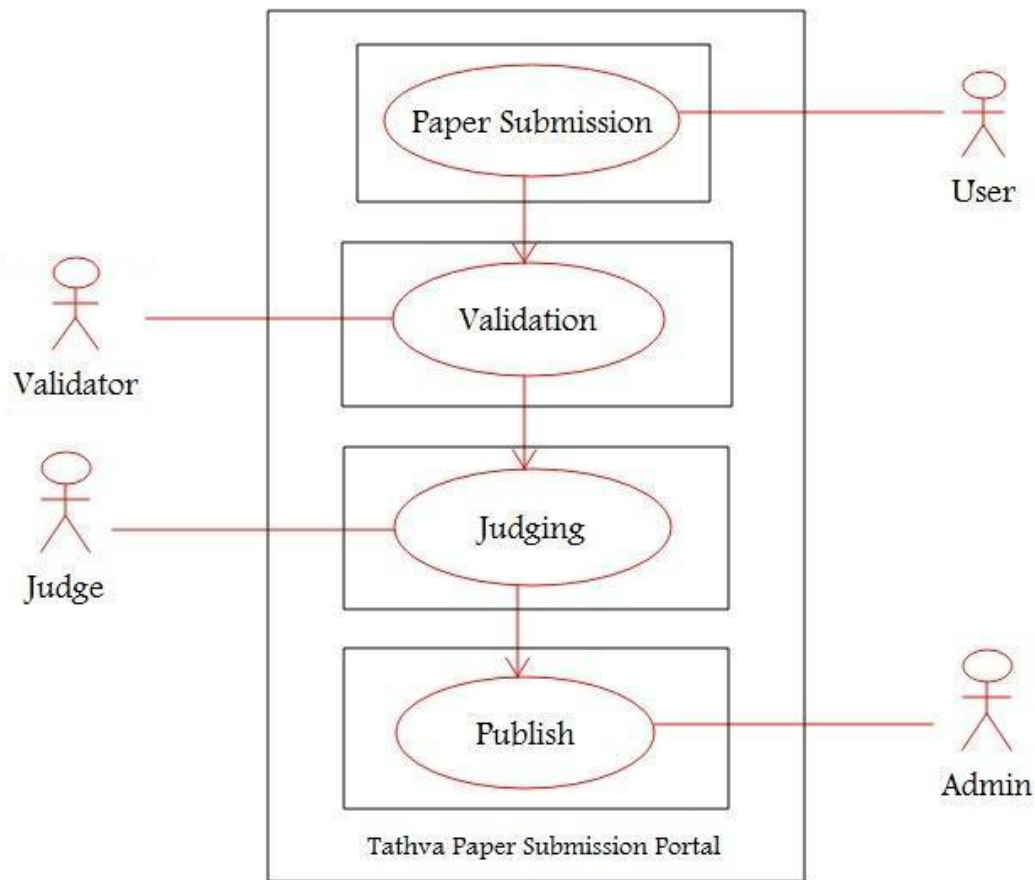
2.0.3 **Hardware interfaces**: Mouse, Keyboard and Server.

2.0.4 **Software interfaces**: Ref 2.2 (Software interface included).

2.0.5 **Communications interfaces**: Internet and standard protocols used for communication.



## 2.1 Overall Description :*System Environment*



**Figure 1 - System Environment**

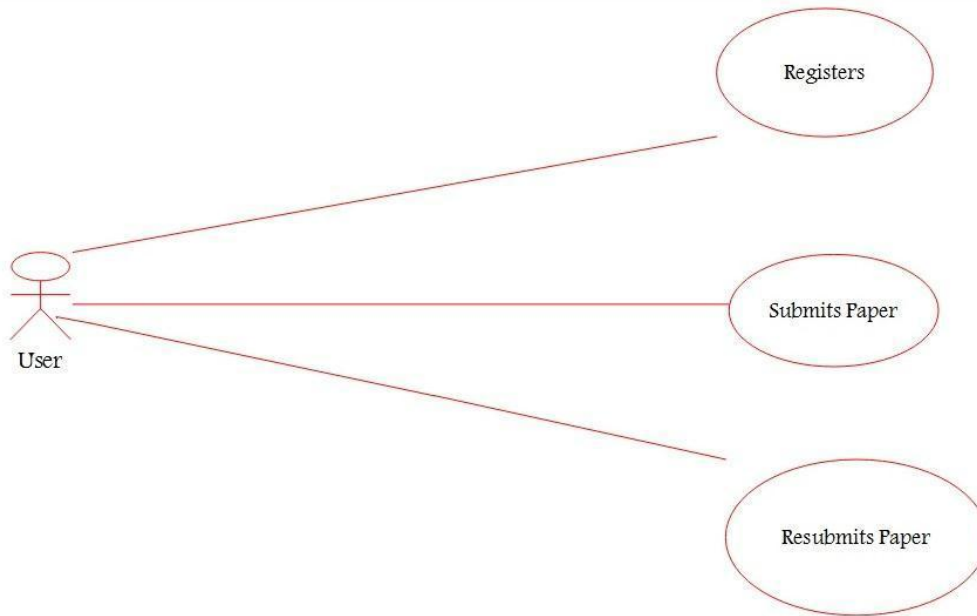
The Tathva Paper Submission Portal has four active actors and one cooperating system. The Admin, Judge, Validator, User accesses the Paper Submission Portal through the Internet. The Admin declares the date of event for paper submission. The User registers himself to take part in the paper submission event. The Validator validates the paper and sends an acknowledgement to the User. If the Paper is valid then it is shortlisted for further judgment. Judges evaluates the papers and selects the top three papers. Admin publishes the Results. Only constraint is one user can submit only one paper.

## 2.2 *Functional Requirements Specification*

This section outlines the use cases for each of the active **Users** separately.

### 2.2.1 User Use Case

The user has the following sets of use cases:



Use case: **Register**

**Diagram:**



### **Brief Description**

The User registers himself for the Paper Submission Event.

### **Initial Step-By-Step Description**

1. The User chooses the register option.
2. The system displays the fields to be filled.
3. The User fills up all the fields and clicks the register button.
4. The system checks all the fields and if all are correctly entered the information are stored in database and a validation mail is being sent to the entered e-mail address.
5. The User clicks the validation link.
6. The User gets registered successfully.
7. The User gets a confirmation in his/her mail id.

**Xref:** Section 3.1.1, Register

Use case: **Submit**

**Diagram:**



### **Brief Description**

The User Logs in to his account and submits paper.

### **Initial Step-By-Step Description**

1. The User chooses the topic for the Paper.
2. The User uploads the Paper.
3. The system checks whether the particular USER has already uploaded any valid paper previously.
4. If so then System rejects the paper uploaded and sends an email to the User.
5. Else The System stores the uploaded Paper for further validation checking.
6. The User gets a system generated confirmation mail.

**Xref:** Section 3.1.2, Submit

Use case: **Re-Submit**

**Diagram:**



**Brief Description**

After getting an email about invalid submission, the User Logs in to his account and can re-submit a revised paper.

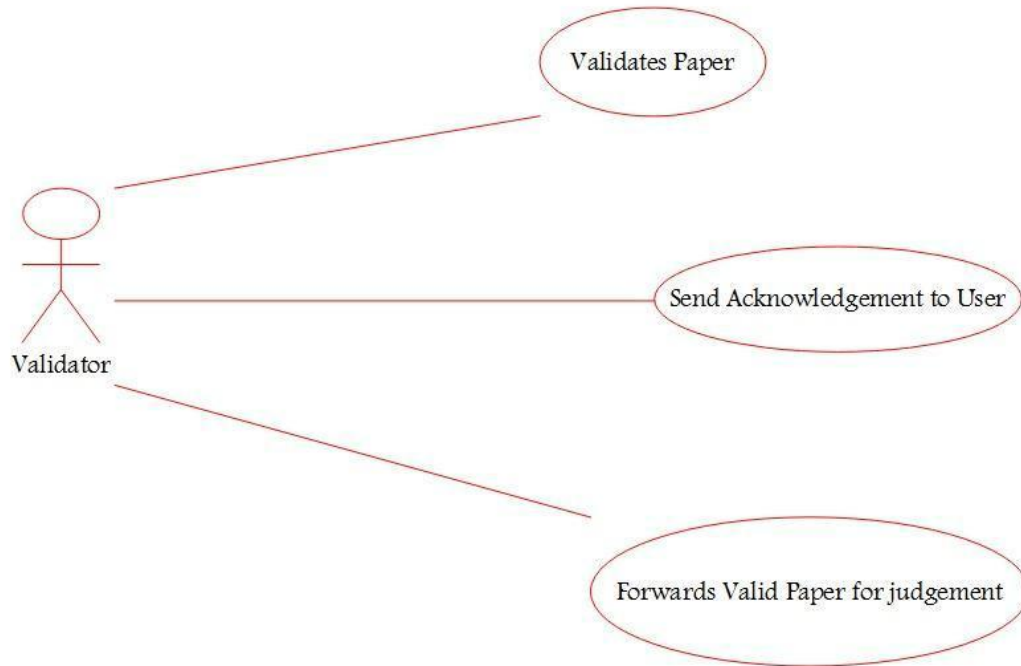
**Initial Step-By-Step Description**

1. The User chooses the topic for the Paper.
2. The User uploads the Paper.
3. The User gets a system generated successful resubmission mail.

**Xref:** Section 3.1.3, Re-Submit

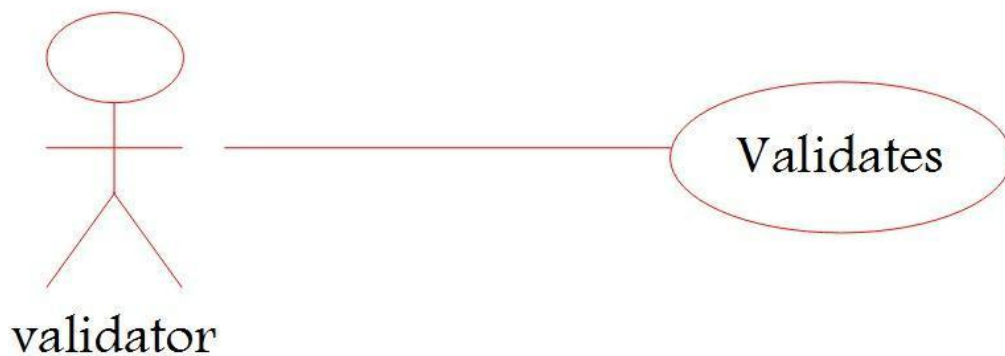
### 2.2.2 Validator Use Case

The Validator has the following sets of use cases:



Use case: **Validate**

Diagram:



**Brief Description**

The Validator validates the submitted papers.

**Initial Step-By-Step Description**

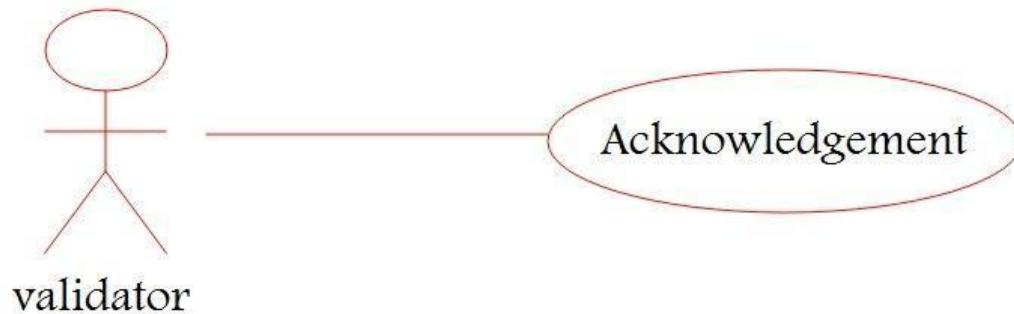
Before this use case can be initiated, the Validator has already connected to the Paper Submission Portal.

1. The Validator chooses the *paper* that has not been checked.
2. The Validator checks for plagiarism and other format issues and decides whether the paper submitted is valid or not.

**Xref:** Section 3.1.4, Validate

Use case: **Acknowledgement**

**Diagram:**

**Brief Description**

The Validator sends a system Generated mail to the User.

**Initial Step-By-Step Description**

Before this use case can be initiated, the Validator has already connected to the Paper Submission Portal and checked the paper.

1. In both cases (valid or invalid) the Validator sends an acknowledgement mail (generated by system) to the User.

**Xref:** Section 3.1.5, Acknowledgment

Use case: **Forward**

**Diagram:**



**Brief Description**

The Validator forwards valid papers for judgment.

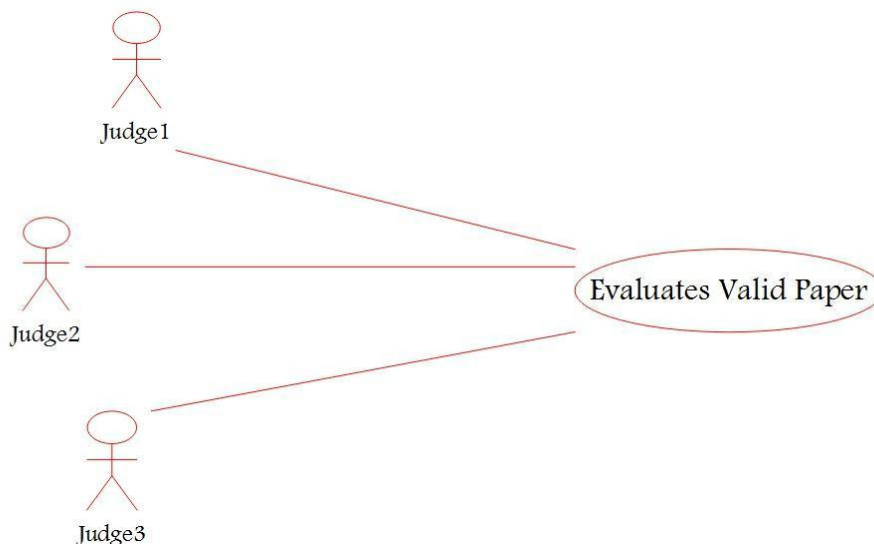
**Initial Step-By-Step Description**

Before this use case can be initiated, the Validator has already connected to the Paper Submission Portal, checked the paper and already sent an acknowledgment to the user.

1. If valid then the corresponding papers are forwarded for judgment.

**Xref:** Section 3.1.6, Forward

2.2.3 Use Case : **Judge**



Use case: **Evaluates**

**Diagram:**



### **Brief Description**

The Judge evaluates papers.

### **Initial Step-By-Step Description**

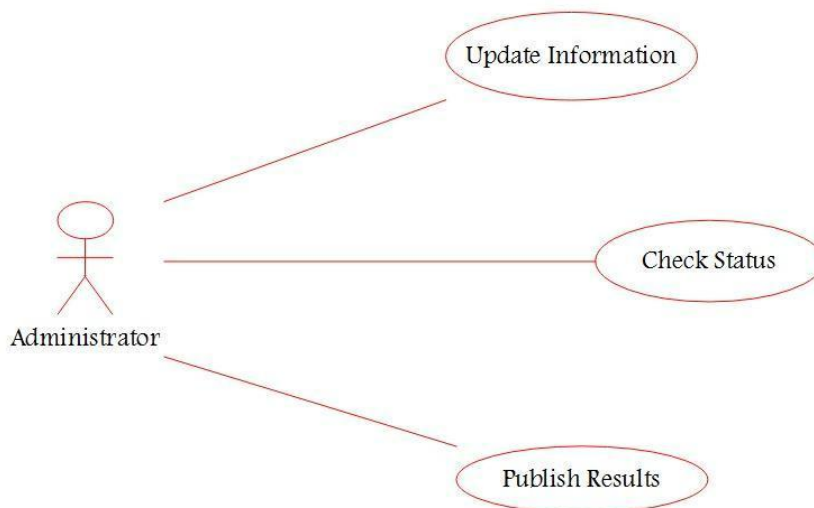
Before this use case can be initiated, the Validator has already validated the papers and the date of submission for papers is over.

1. The Judge evaluates all valid papers and provides scores for them.
2. System automatically adds them up and generates **Result**.

**Xref:** Section 3.1.7, Judge

### 2.2.4 Admin Use Cases

The Admin has the following sets of use cases:



**Figure 2 - Admin Use Cases**



## Update Information use cases

Use case: **Update Validator**

**Diagram:**



### Brief Description

The Admin enters a new Validator or updates information about a current Validator.

### Initial Step-By-Step Description

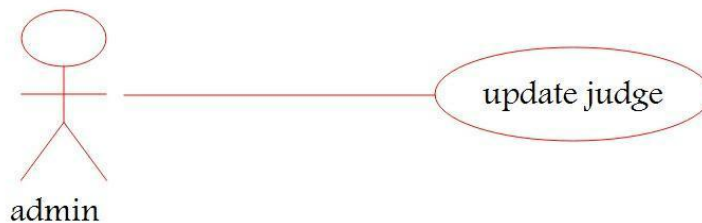
Before this use case can be initiated, the Admin has already accessed the main page of the System Admin.

1. The Admin selects to *Add/Remove Validator*.
2. The system presents a choice of adding or updating.
3. The Admin chooses to add or to update.
4. The Admin can access every database and hence updates database accordingly.

**Xref:** Section 3.1.8, Add Validator; Section 3.1.9 Remove Person

Use case: **Update Judge**

**Diagram:**



### Brief Description

The Admin enters a new Judge or updates information about a current Judge.

### Initial Step-By-Step Description

Before this use case can be initiated, the Admin has already accessed the main page of the System Admin.

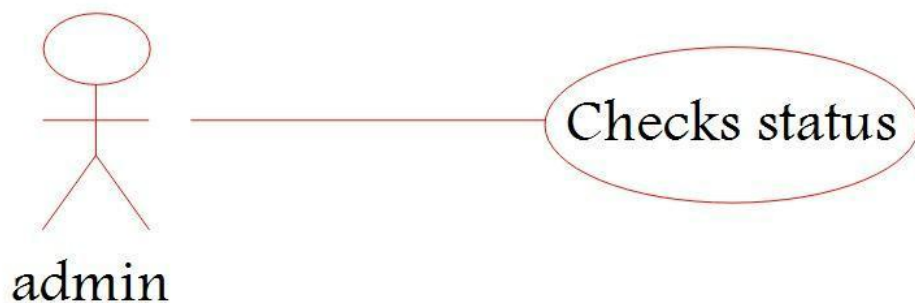
1. The Admin selects to *Add/Remove Judge*.
2. The system presents a choice of adding or updating.
3. The Admin chooses to add or to update.
4. The Admin can access every database and hence updates database accordingly.

**Xref:** Section 3.1.10, Add Judge; Section 3.1.9 Remove Person

### Check Status use case:

Use case: Check Status

### Diagram:



### Brief Description

The Admin checks status of the current Paper submission event.

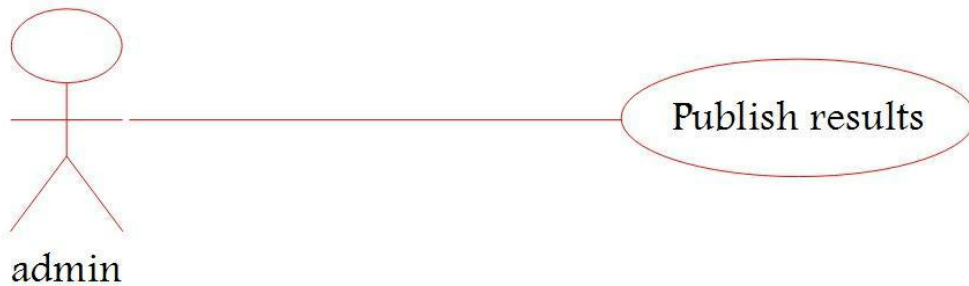
### Initial Step-By-Step Description

Before this use case can be initiated, the Admin has already accessed the main page of the System Admin.

1. The Admin checks whether there are any problems regarding the procedures.
2. The Admin decide when to start or stop the full event.

**Xref:** Section 3.1.11 Check Status

**Publish use case:**  
Use case: **Publish**  
**Diagram:**



**Brief Description**

The Admin publish results of the current Paper submission event.

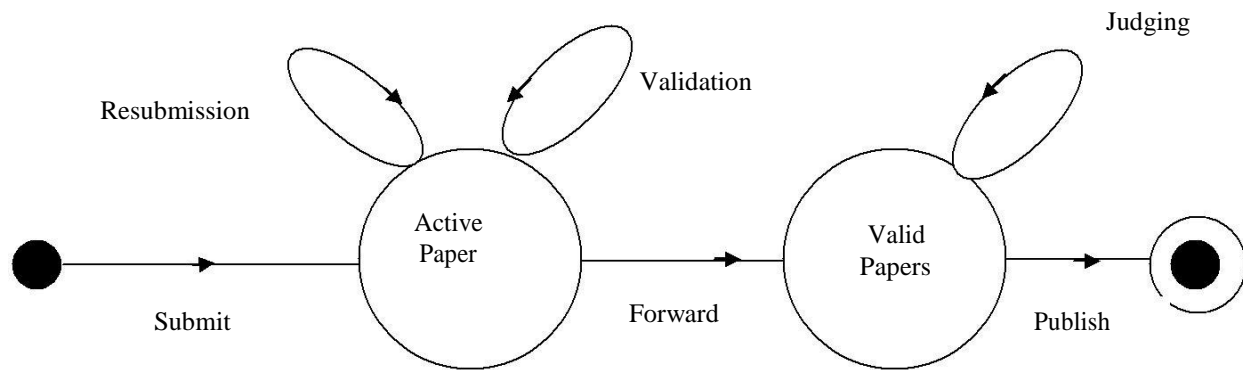
**Initial Step-By-Step Description**

Before this use case can be initiated, the Judges have already declared the results.

1. Admin publish the result in the portal.
2. Winners receive mail in their email-ids.

**Xref:** Section 3.1.12 Publish

### State Transition diagram for Paper Submission Process



**Figure 3 - Paper Submission Process**

The *Paper Submission Process* state-transition diagram summarizes the use cases listed below. A User submits a paper for consideration. The Validator validates the Active paper. If the paper is found to be invalid then User has to re-submit. If the paper is valid the validator forwards the Active paper for further Judgment. At least three validators and three Judges should be there. Judge evaluates the valid papers and at the end of the event adds up the marks. Admin publishes the result in the website. Admin has the highest authority. He can access any database and delete any user at any-time (Not mentioned in the state diagram)

### **2.3 User Characteristics**

The User is expected to be Internet literate and be able to use a search engine. The main screen of the Paper Submission Portal will have login/register option and a news area where updates regarding the event will be put up.

The Validator, Judge and Admin are expected to be Internet literate.

The detailed look of these pages is discussed in section 3.1 below.

## **2.4 Constraints**

### **2.4.1 Bandwidth Constraints**

- The Paper Submission Portal will be on a server with high speed Internet capability.
- Assuming that Internet is of high bandwidth, recommended no: of competitors to be able to access the system at a time is 100. The reason is updating the database is a complex action and so many concurrency issues might occur.
- The software developed here assumes the use of a tool such as Apache for connection between the Web pages and the database.

### **2.4.2 Space Constraints**

- The storage space required for this System to run including Database size is within 50MB. But Uploaded papers will require considerable amount of storage space which is depended on the number of competitors.
- All the databases are centralized and will be accessible from outside also.

### **2.4.3 Type Constraints**

- All uploaded papers should be of pdf (Portable Document Format) format.

## **2.4 Assumptions and Dependencies**

- As it is web based application so there is no Operating System dependencies.
- As it is a web based system so it can be hosted both in Linux or Windows based server.

### 3.0. Requirements Specification

#### 3.1 Functional Requirements

The Logical Structure of the Data is contained in Section 3.2.1.

##### 3.1.1 Register

<b>Use Case Name</b>	Register
<b>XRef</b>	Section 2.2.1, Register
<b>Trigger</b>	The User accesses the Paper Submission Portal for the first time.
<b>Precondition</b>	The User is not already registered.
<b>Basic Path</b>	<ol style="list-style-type: none"><li>1. The User chooses the register option.</li><li>2. The system displays the fields to be filled.</li><li>3. The User fills up all the fields and clicks the register button.</li><li>4. The system checks all the fields and if all are correctly entered the information are stored in database and a validation mail is sent to the email address . The User clicks the link in email and gets registered successfully.</li><li>5. The User gets a confirmation in his/her mail id.</li></ol>
<b>Alternate Path</b>	In step 4, if all the fields are either not entered or are not correctly entered; the user is asked to fill in the details.
<b>Postcondition</b>	The person is registered.
<b>Exception Paths</b>	If the user is already registered the use case is abandoned. The person may choose not to register at any time.
<b>Other</b>	None

##### 3.1.2 Submit

<b>Use Case Name</b>	Submit
<b>XRef</b>	Section 2.2.1. Submit paper
<b>Trigger</b>	The user uploads his paper and submits it.
<b>Precondition</b>	The user is already registered.
<b>Basic Path</b>	This use case uses the <i>input</i> HTML tag with type=submit. This uploads the paper in the server.
<b>Postcondition</b>	The paper is uploaded.
<b>Exception Paths</b>	If the user has already submitted a valid paper the use case is abandoned. The attempt may be abandoned at any time.
<b>Other</b>	None

##### 3.1.3 Resubmit

<b>Use Case Name</b>	Resubmit
<b>XRef</b>	Section 2.2.1,,resubmit paper
<b>Trigger</b>	The user uploads his paper and submits it for resubmission.
<b>Precondition</b>	The user is registered and his paper has been returned as not valid.

<b>Basic Path</b>	1. The User chooses the topic of the Paper. 2. The User uploads the Paper. 3. The paper is uploaded into the server.
<b>Alternative Paths</b>	None
<b>Postcondition</b>	The user's paper is uploaded into the server.
<b>Exception Paths</b>	The User may abandon the operation at any time.
<b>Other</b>	None

### 3.1.4 Validator

<b>Use Case Name</b>	Validator
<b>XRef</b>	Section 2.2.2 validator
<b>Trigger</b>	The validator validates the paper.
<b>Precondition</b>	The paper has been submitted by a user.
<b>Basic Path</b>	1. The Validator chooses the <i>paper</i> that has not been checked. 2. The Validator checks plagiarism and other format issues and decides whether the paper submitted is valid or not.
<b>Alternative Paths</b>	None.
<b>Postcondition</b>	The validator has validated the paper.
<b>Exception Paths</b>	The Validator may abandon the operation at any time.
<b>Other</b>	The Validator information includes paper id, Id and valid bit , checked bit.

### 3.1.5 Acknowledgment

<b>Use Case Name</b>	Acknowledgement
<b>XRef</b>	Sec 2.2.2,acknowledgment
<b>Trigger</b>	The validator sends his acknowledgment.
<b>Precondition</b>	The Validator has validated the paper.
<b>Basic Path</b>	1. In both cases (valid or invalid) the Validator sends an acknowledgement mail(generated by system) to the User.
<b>Alternative Paths</b>	None.
<b>Postcondition</b>	The user has been sent an acknowledgement.
<b>Exception Paths</b>	None.
<b>Other</b>	None.

### 3.1.6 Forward

<b>Use Case Name</b>	Forward
<b>XRef</b>	Section 2.2.2,forwards
<b>Trigger</b>	The Validator forwards and the valid paper ids are inserted in the judges table.
<b>Precondition</b>	The Validator has already connected to the Paper Submission Portal , checked the paper and already sent an acknowledgment to the user.
<b>Basic Path</b>	1.If valid then the corresponding papers are forwarded for judgment.

<b>Alternative Path</b>	If the paper is not valid then a negative acknowledgement is sent to the User.
<b>Postcondition</b>	The paper has either been forwarded to Judge or has been returned to the user.
<b>Exception Paths</b>	None.
<b>Other</b>	None.

### 3.1.7 Judge

<b>Use Case Name</b>	Judge
<b>XRef</b>	Section 2.2.3,judge
<b>Trigger</b>	The judge evaluates the paper.
<b>Precondition</b>	The Validator has already validated the paper and forwarded to Judge.
<b>Basic Path</b>	1. The Judge evaluates all valid papers and provides scores for them. 2. System automatically adds them up and generates result.
<b>Alternative Paths</b>	None
<b>Postcondition</b>	The paper is evaluated.
<b>Exception Paths</b>	The Judge may abandon the operation at any time.
<b>Other</b>	None

### 3.1.8 Admin

<b>Use Case Name</b>	Add Validator
<b>XRef</b>	Section 2.2.4, Update information; update validator.
<b>Trigger</b>	The admin chooses the add validator option.
<b>Precondition</b>	The Admin is already registered and has logged in.
<b>Basic Path</b>	1. The Admin selects to <i>Add/Remove Validator</i> . 2. The system presents a choice of adding or updating. 3. The Admin chooses to add . 4. The Admin can access every database and hence updates database accordingly.
<b>Alternative Paths</b>	The admin chooses to add judge option.
<b>Postcondition</b>	The Validator database has been updated.
<b>Exception Paths</b>	The Admin may abandon the operation at any time.
<b>Other</b>	This use case extends <i>3.1.10, Add Judge</i> .

### 3.1.9 Admin

<b>Use Case Name</b>	Remove Person
<b>XRef</b>	Section 2.2.4,Update.
<b>Trigger</b>	The admin chooses Update Judge/Validator option.
<b>Precondition</b>	The Admin is already registered and has logged in.



<b>Basic Path</b>	1. The Admin selects to <i>Update Judge</i> . 2. The system presents a choice of adding or removing. 3. The Admin chooses to add or to remove.
<b>Alternative Path</b>	None.
<b>Post Condition</b>	The Judge database has been Updated.
<b>Exception Path</b>	The Admin may abandon the operation at any time.
<b>Other</b>	None.

### 3.1.10 Admin

<b>Use Case Name</b>	Add Judge
<b>XRef</b>	Section 2.2.4, add judge.
<b>Trigger</b>	The Admin chooses Add Judge option.
<b>Precondition</b>	The Admin is already registered and has logged in.
<b>Basic Path</b>	1. The Admin selects to <i>Add/Remove Judge</i> . 2. The system presents a choice of adding or updating. 3. The Admin chooses to add.
<b>Post condition</b>	1. The admin can access every database and hence updates databases accordingly
<b>Alternative Paths</b>	None.
<b>Postcondition</b>	The judge database has been updated.
<b>Exception Paths</b>	The Admin may abandon the operation at any time.
<b>Other</b>	None.

### 3.1.11 Check status

<b>Use Case Name</b>	Check status
<b>XRef</b>	Section 2.2.4, check status
<b>Trigger</b>	The admin chooses the check status option.
<b>Precondition</b>	The Admin has already logged into the account.
<b>Basic Path</b>	1. The Admin checks whether there are any problems regarding the procedures. 2. The Admin decide when to start or stop a full event.
<b>Alternative Paths</b>	None.
<b>Postcondition</b>	The Admin has received the present status.
<b>Exception Paths</b>	The Admin may abandon the operation at any time.
<b>Other</b>	None.

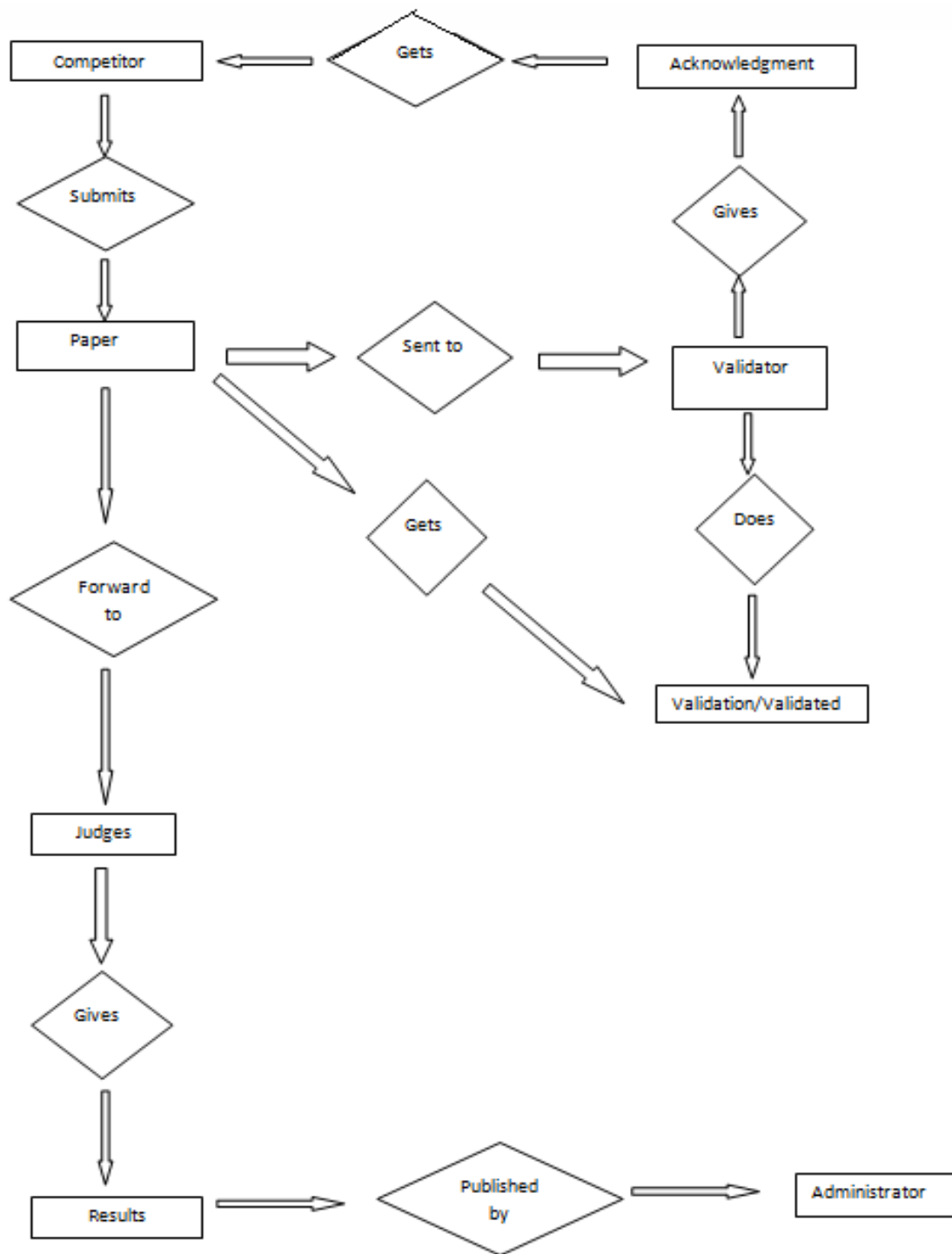
### 3.1.12 Publish Results

<b>Use Case Name</b>	Publish
<b>XRef</b>	Section 2.2.4, Publish Result
<b>Trigger</b>	Admin access the Judge's database and publishes the result.
<b>Precondition</b>	The Judge has evaluated all the papers.
<b>Basic Path</b>	1. Admin publish the result in the portal. 2. Winners receive mail in their email-ids.
<b>Alternative Paths</b>	None.
<b>Postcondition</b>	The result has been published and winners have been sent e-mails.
<b>Exception Paths</b>	None.
<b>Other</b>	None.

## 3.2 *Detailed Non-Functional Requirements*

### 3.2.1 Logical Structure of the Data

The logical structure of the data to be stored in the internal databases is given below.



### 3.2.2 Security

- The server on which the Online System resides will have its own security to prevent unauthorized *write/delete* access.
- There is no restriction on *read* access.

- Security regarding the write access is kept in mind while constructing the system itself. The Validator can write multiple databases while the judge can write only in the database dedicated to him/her. The Admin can access and change any database at any time.
- Concurrency control.
- No User can access other's User's account(Cannot update or delete other's information)

### 3.2.3 Others Non – Functional Requirements:

#### ☐ Reliability :

- o The system should be online 24 hours during the time of event.
- o The system can provide service to at least 50 users at a time
- o Security (ref: 3.2.2)

#### ☐ Efficiency :

- o Uploading of paper must be fast enough.
- o Storing paper in server without storing them in Database itself will help to achieve efficiency

#### ☐ Portability :

- o As it a web based system so transferring the system from one server to another if required shouldn't be a problem.

#### ☐ Maintainability :

- o Admin should find it easy to maintain and manage.
- o System should be Flexible enough to add other features (Ref : 3.3)

□ Usability :

- o User should find it easy during registration and login.

### **3.3    *System Evolution***

In the future this system

- Will provide a more secured way of registration i.e Email Validation via link.
- Will provide a secured login.
- Validation process will be fully automated and will include plagiarism checker.
- Text message alerts will be included.