



## Online Review Requirements Specification

*This document outlines the Application Scope and Requirements for Online Review.*

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## Application Requirements Specification

### 1. Scope

#### 1.1 Overview

The Online Review and Scorecard Project will make modifications to TopCoder's current online review and scorecard systems to reduce the amount of time spent performing reviews.

The entire infrastructure of Online Review and Scorecards will be redesigned to be more flexible and provide better insight into TopCoder's application process. The current Online Review system automates the TopCoder Software peer review process only for Component Designs and Component Developments. The new infrastructure will allow more project types (i.e. Application Specification, Application Architecture), multiple scorecards per project (i.e. FDA, SOX, SEC), optional review phases (i.e. submission) and custom review phases (i.e. client review). The creation of "on demand" review will allow projects to advance to the next phase as soon as the review is complete rather than wait for a deadline to pass or manually advancing the project to the next phase.

TopCoder wishes to enable the front page of online review to provide proper breakouts of each project phase and also the ability for users to view only projects for which they are associated. This will allow PMs, clients and architects to view project status and timelines for all project types.

The Online Review Application automates the TopCoder Software peer review process for both Component Design and Component Development projects. Reviewers are able to login, check the status of their assignments, download submissions for review, complete online review forms and perform aggregation of reviews. The administration section allows users to set up reviews, assign members, monitor the process and intervene at any stage of development.

TopCoder will modify their current Scorecard Admin tool to enhance the Online Review process. Administrators will have the ability to set multiple default scorecards per project phase and create client specific scorecards. Scorecards will be created for various project types including: Applications, Assembly Competitions, Testing Competitions as well as Components.

Although the application will be initially used by TopCoder, the intention is to build the application in a generic fashion such that it could be used by any organization.

#### 1.2 Objectives

- Design a flexible service oriented online review system that will allow all project participants to easily and quickly perform reviews.
- Provide a consistent interface for all project participants to use while participating in project development.

General Project Metrics:

- PM and Architects spend on average 54 hours a year doing review for one project, for a total of 2690 hours for an estimated 50 projects for this year. The online review tool will reduce this number by an average of 40% for an estimated savings of \$53,800 a year.
- Flexibility to add in customer specific, industry specific (FDA, SOX, SEC) and security scorecards, resulting in more sales because clients will be assured of security.

- PMs, clients and Architects will have the ability to view project status and timelines for all applications. This will internally save the PMs \$468,000 dollars per year in revenue they could bill on other projects. This number comes from time spent filling out status reports: 30 PMs, \$150 per hour, 2 hours and 52 weeks. Additionally, the operations staff will save \$11,000 dollars a year spent tracking down and reviewing timelines.
- Currently no tool exists to allow assembly and testing competition deliverables to be reviewed. The online review tool will facilitate assembly and testing competitions and result in a reduction in overall timelines and an increase in quality.
- Assembly and Testing competitions will increase participation outside the current list of 17 assemblers, resulting in a larger member base.
- Assembly competitions will reduce amount of code written. Assemblers will focus on conversion of prototypes and configuration. This will also reduce cost of the assembly phase and increase quality.
- Assembly Competitions will reduce cost of assembly (99% currently overrun).
- Assuming an average of 4.5 weeks of assembly (including overruns), reducing this timeline to 2 weeks and paying set prices for assembly competitions will result in a savings of \$21,200 per project.
- Improve quality of the entire process by forcing assemblers to request more components and/or improved deliverables.
- Net ROI \$680,750, estimated internal cost \$74,000.

## 1.3 Limitations

- This project will focus on facilitating Applications, Assembly Competitions and Testing Competitions. Components will be integrated during the Dependency Migration project. However consideration of this future direction must be given.
- Versioning will not be handled in this application.

## 2. Logic Requirements

### 2.4 Create Project

#### 2.4.1 Create Project Activity

Managers are allowed to create new Online Review projects.

##### 2.4.1.1 Enter Project Details

Field	Description	Type	Required	Validation	Default
Name	Name of New Project	Text-Box	Yes	No	None
Type	Type of project	Drop-down	Yes	N/A	Component
Category	Project Category	Drop-down	Yes	N/A	Select
Eligibility	Used to denote visibility of project	Drop-down	Yes	N/A	Open
Public	Used to denote a public or private project, private projects do not show in "View All Projects" Activity	Checkbox	Yes	N/A	Unchecked
Auto Pilot	Determines state of Auto Pilot feature	Option Button	Yes	N/A	Checked
Send Email	Email notifications sent	Checkbox	Yes	N/A	Default to on <b>each</b>

Notifications	Used to send notifications to manager when project is edited				<b>time project is edited.</b>
Do Not Rate this Project	Project rating	Checkbox	No	N/A	Unchecked
Receive Time Notification	Automatic notification of change in Timeline	Checkbox	No	N/A	Unchecked
Screening	Scorecard Screening	Drop-down	No	N/A	Select
Review	Scorecard Review	Drop-down	No	N/A	Select
Approval	Scorecard Approval	Drop-down	No	N/A	Select
Forum Link	Link to project forum	Text-Box	Yes	No duplicates	Link to forum
SVN Module	SVN module name	Text-Box	No	No duplicates	Name of SVN module(s)
Notes	Area to store project notes	Text-Area	No	Less than configurable length	None
Create Timeline, Use Timeline Template	Use a pre-defined Timeline Template	Drop-down	No	N/A	None
Resources	Resources involved	Drop-down	Yes	N/A	None
Name	Name of resource	Text box	Yes	No	None
Payment	Payment Amount	Option Button/Number Field	Yes	Valid Number	None
Paid	Status of payment	Drop-down	Yes	N/A	None

- Future projects will provide the ability to specify project eligibility, for this release the only option will be “Open” or “TopCoder” private.

## 2.4.1.2 Create Timeline

See Timeline Activity

## 2.4.1.3 Edit Project Resources

See Edit Project Resources Activity

## 2.4.1.4 Validate Project Details

Project details must be validated based on the information listed in section 2.5.1.1.

## 2.4.1.5 Display Error

If project details are not validated, the user must receive an explanatory error message.

## 2.4.1.6 Create Project Online Review

- For application and component projects, one project online review will be created.
- For assembly and testing competitions, one Online Review will be created for each competition.

## 2.4.1.7 Create Registration

- For application and component projects, one project registration will be created.
- For assembly and testing competitions, one registration will be created for each competition.

## 2.4.2 Create Project Activity - Create Timeline

Managers are allowed to create timelines for Online Review projects.

### 2.4.2.1 Populate Timeline Default Phases

- Each project type must have its own configurable default phase timeline.
- Component Timeline Default Phases:
  - Registration
  - Submission
    - Screening (if manual screening is required, one screening phases will appear in the timeline for each submission when auto-screening is complete)
  - Review
  - Appeals
  - Appeals response
  - Aggregation
  - Aggregation Review
  - Final Fix
  - Final Review
- Application Specification Timeline Default Phases
  - Submission
    - Screening (if manual screening is required, one screening phases will appear in the timeline for each submission when auto-screening is complete)
  - Review
  - Appeals
  - Appeals Response
  - Aggregation
  - Aggregation Review
  - Final Fix
  - Final Review

### 2.4.2.2 Populate Timeline Default Start Date

- Each project must have a configurable default start date
- For components the default start date will be 9:00 the following Thursday.
- For application specifications the default start date will be the current date
- All dates should be Eastern Time zone specific.

### 2.4.2.3 Populate Timeline Default Duration

- Each project type must have its own configurable default timeline durations.
- Component Development and Design Timeline Default Durations:
  - Registration – 72 hours
  - Submission – 120 hours
    - Screening – 24 hours
  - Review – 24 hours
  - Appeals – 25 hours
  - Appeals response – 12 hours
  - Aggregation – 12 hours
  - Aggregation Review – 24 hours
  - Final Fix – 24 hours
  - Final Review – 24 hours
- Application Timeline Default Durations:
  - Submission – 24 hours
    - Screening – 24 hours

- Review – 24 hours
- Appeals – 24 hours
- Appeals Response – 24 hours
- Aggregation – 24 hours
- Final Fix – 24 hours
- Final Review – 24 hours

#### 2.4.2.4 Populate Default Phase Start and Phase End Dates

Based on the phase start date and phase durations the start and end dates will be generated for each phase.

## 2.5 Edit Project Details

Managers are allowed to edit project details for an Online Review project.

### 2.5.1 Edit Project Details Activity

Managers have permission to edit project details.

#### 2.5.1.1 Choose Project

A user must first choose the project for which they wish to edit details.

#### 2.5.1.2 Edit Project Details

Users may edit the following project details, additional edit activities in following sections.

Field	Description	Type	Validation	Required
Notes	Project notes	Text	Configurable length	No
Auto-pilot	Auto-pilot advances phases based on deliverables completed	Check-box	N/A	N/A
Project Edit Notifications	Used to send emails to project managers when project is edited	Check-box	N/A	N/A
Project Rated	Used to denote if project resources are to be rated for this project	Check-box	N/A	Yes
Payments Required	Used to denote if project will send payments. This will show payment and payment sent in project details.	Check-box	N/A	Yes

#### 2.5.1.3 Capture Edit Explanation

Each time the project is edited an edit explanation must be captured.

### 2.5.2 Edit Project Details Activity - Select Project Scorecards

Managers are allowed to select project resources for an Online Review project.

#### 2.5.2.1 Display Phases with Scorecards

- Each phase instance must be distinguishable from the other instances.
- The system must allow the user to select scorecards for each instance of the following phases
  - Screening
  - Review
  - Approval

#### 2.5.2.2 Select Scorecards

- The user must select the scorecard to use for each phase.



- Only active scorecards can be selected.
- If more than one instance of a specific phase exists, the user must set the scorecard for each instance.

## 2.5.3 *Edit Project Details Activity - Edit Timeline*

Managers are allowed to edit a projects timeline.

### 2.5.3.1 Edit Timeline

See specific timeline activities in the following sections.

### 2.5.3.2 Check for Gaps in Timeline

The system will check for gaps and overlaps in the timeline

### 2.5.3.3 Display Warning

If gaps or overlaps exist the system will display a warning message.

### 2.5.3.4 Validate Phase Details

The system must validate the phase details:

- Registration, submission, review, appeals and appeals response may overlap.
- Aggregation must start after appeals response
- Aggregation Review must start after aggregation
- Final Fix must start after Aggregation Review
- Final Review must start after Final Fix

### 2.5.3.5 Display Validation Error

The system must display validation errors to the user.

### 2.5.3.6 Recalculate Phase Start and End Dates

The system will recalculate phase start and end dates for each phase.

### 2.5.3.7 Store Timeline Details

### 2.5.3.8 Send Notifications

All project resources that have opted to receive timeline changes must receive an email notification.

## 2.5.4 *Edit Project Details Activity - Edit Timeline – Add Phase*

Managers are allowed to add phases to a project timeline

### 2.5.4.1 Specify New Phase

- The user must specify the type of phase to create.
- If the phase already exists in the timeline, the phase name will appear with a numeric number indicating the phase number (i.e. Registration 2)
- Possible phases:
  - Registration (default length 72 hours)
  - Submission (default length 120 hours)
  - Review (default length 24 hours)
  - Appeals (default length 12 hours)
  - Appeals Response (default length 12 hours)
  - Aggregation (default length 24 hours)
  - Final Fix (default length 24 hours)
  - Client Review (default length 24 hours)
  - Manager Review (default length 24 hours)

## 2.5.4.2 Specify Location for New Phase

The user must specify the location in the current timeline to place the new phase.

## 2.5.4.3 Validate Phase Location

- Multiple instances of phases or groups of phases may exist.
- The system must validate the location for the new phase based on the following rules:
  - Beginning phases must be registration or submission
  - Registration and submission phases can occur anywhere in the timeline
  - Registration is optional
  - If registration is present, submission must follow registration
  - Review must follow submission or screening
  - Appeals must follow review
  - Appeals response must follow appeals
  - Appeals and Appeals Response are optional
  - Aggregation and Aggregation review are optional
  - If Aggregation is present, Aggregation Review must follow
  - If aggregation and aggregation review are present, they must follow appeals response or review
  - If aggregation and aggregation review are not present, final fix must follow appeals response or review
  - If Final Fix is present, Final Review must follow
  - Approval can occur after any phase

## 2.5.4.4 Recalculate Start and End Dates

- After selecting the new phase and placement, the system will recalculate the start and end dates.
- The new phase start date will default to the end of the previous phase dates for each phase.

## 2.5.5 *Edit Project Details Activity - Edit Timeline Activity – Delete Phase*

Managers are allowed to delete certain phases from a project timeline.

### 2.5.5.1 Select Phase

The user must select the phase to delete.

### 2.5.5.2 Validate Phase Deletion

The system must validate the deletion of the phase based on the following rules:

- Each timeline must have the following phases: submission, review, final review
- Ending phases must be final review, client review or manager review
- Final fix phase must have final review
- Appeals must have appeals response
- Submission must come after registration

### 2.5.5.3 Prompt for Confirmation

The user must confirm the deletion.

### 2.5.5.4 Delete Phase

If the deletion is valid the phase will be removed from the timeline.

### 2.5.5.5 Update Phase Start and End Dates

After deleting the phase, the system will recalculate the start and end dates for each phase.

### 2.5.5.6 Phase Not Deleted

- If the deletion is not valid the phase will not be removed from the timeline.
- When deletion fails an error message must display the reason for non-deletion.

## 2.5.6 *Edit Project Details Activity - Edit Timeline Activity – Set Phase Start Criteria*

The default for each phase to start is at the end of the previous phase. Users may wish to modify start dates for phases.

### 2.5.6.1 Select Phase

The user must select the phase for which they wish to set the start date.

### 2.5.6.2 Specify Start Criteria

- The user must specify the start criteria.
- Criteria selections will be populated with valid selections only.
- The following criteria are available:
  - When previous phase ends
  - When previous phase begins (if valid)
  - When X phase ends (provide drop down of possible phases)
  - When X phase begins (provide a drop down of possible phases)
  - Date

### 2.5.6.3 Set Lag Time

- Lag time (days or hours) relative to phase begin criteria.
- The lag time may be positive or negative (negative may not be possible).

## 2.5.7 *Edit Project Details Activity - Edit Timeline Activity – Set Phase End Criteria*

Registration and Submission phases allow the manager to specify end criteria.

### 2.5.7.1 Select Phase

The user must select the phase for which they wish to set the end criteria.

### 2.5.7.2 Edit End Date

- The user may edit default end dates for any phase.
- If phase end dates are modified, phase duration will change.
- Phase end date must come after phase begin date.

### 2.5.7.3 Set End Criteria

Registration and Submission phases have specific end criteria that may be set.

#### 2.5.7.3.1 Set Registration End Criteria

The user may specify the number of registrations or submissions required to end the registration phase.

#### 2.5.7.3.2 Set Submission End Criteria

- The user may require manual screening for submission.
- If manual screening is required, the user must specify duration for manual screening.
- Default duration for manual screening is 24 hours.
- No screening will be marked late if it is completed within the set duration.

## 2.5.8 *Edit Project Details Activity - Edit Timeline Activity – Set Phase Duration*

Managers are allowed to set the phase duration for any phase.

### 2.5.8.1 Select Phase

The user must first select the phase for which they wish to edit the phase duration

## 2.5.8.2 Edit Duration

- The user may edit the default durations for any phase.
- If phase duration is modified, phase end dates will change.
- Phase duration must be in valid time format.

## 2.5.8.3 Update Phase Start and End Dates

After editing the duration, the system will recalculate the start and end dates for each phase

## 2.5.9 Edit Project Details Activity - Edit Project Resource

Managers are allowed to edit project resource information.

### 2.5.9.1 Choose Project Resource

A user must choose the project resource they wish to edit.

### 2.5.9.2 Edit Project Resource Details

Users may edit any of the project resource details outline below:

Field	Description	Type	Required	Validation
Role	Role of project resource	Drop-down	Yes	N/A
Name	Handle of project resource	Text	Yes	Must exist in member base
Payment	Payment amount for project resource	Text	Only for component projects	Valid dollar amount greater than or equal to \$0
Payment Status	Used to signify payment status	Radio button	Only for component projects	N/A

### 2.5.9.2.1 Project Roles

- If more than one phase exists with the same name, it must be apparent which role goes with which phase.
- The following roles are valid:
  - Aggregator (one per aggregation phase)
  - Designer (one per project)
  - Final Reviewer (one per final review phase)
  - Screener (one per submission) OR
  - Primary Screener (one per screening phase)
  - Submitter (one to many per project)
  - Reviewer (one to many per project)
  - Stress Test Reviewer (one per review phase, for component projects)
  - Failure Test Reviewer (one per review phase, for component projects)
  - Accuracy Test Reviewer (one per review phase, for component project)
  - Manager (one to many per project)
  - Observer (one to many per project)
  - Public (one to many per project)
  - Approver (one per approval phase)

### 2.5.9.3 Validate Project Resource Details

Validation must occur according to the rules listed above.

## 2.5.9.4 Store Project Resource Information

Project resource information will be stored and the user will remain on the project details page, the information will be updated and returned to read-only state.

## 2.5.10 *Edit Project Details Activity - Edit Project Resources Activity – Assign Primary Screener*

Managers are allowed to assign primary screeners to a project. The primary screener will perform all the screenings for a project.

### 2.5.10.1 Choose Primary Screener

Managers may choose a primary screener for the project, responsible for all screenings.

### 2.5.10.2 Assign Submissions

- Primary Screeners will be responsible for screening all submissions.
- The Primary Screener handle should appear as the resource name for all individual screening roles.

## 2.5.11 *Edit Project Details Activity - Set Current Phase*

Managers are allowed to change the current phase for a project, validation must occur to ensure the project is allowed to enter the new state.

### 2.5.11.1 Select Phase

- The Manager must select the phase they wish to move the project to.
- Managers may not move projects to previous phases.
- Only valid phases will be displayed as options for movement.

### 2.5.11.2 Validate Move

- The system must validate the move.
- The project cannot move without the required preconditions for the current phase.

### 2.5.11.3 Display Error

If the phase move is not validated the system must display a descriptive error message.

### 2.5.11.4 Move Project

If the move is valid the system must move the project to the selected phase.

## 2.5.12 *Edit Project Details Activity - Change Project Status Activity*

Managers are allowed to change the project status to various states.

### 2.5.12.1 Edit Project Details Activity - Change Project Status Activity – Failed Screening

A user can change the project status while editing the project details.

#### 2.5.12.1.1 Set Status to Failed Screening

#### 2.5.12.1.2 Capture Reason

The system must capture the reason for the status change.

#### 2.5.12.1.3 Send Payment Notifications

- After setting the project status to “failed review” or “completed”, the manager must view a confirmation screen with a “send payment” button.
- The “send payment” button will link to the PACTs system.

## 2.5.12.1.4 Remove Project from List

After a project fails screening it will be removed from the project list.

## 2.5.12.2 Edit Project Details Activity - Change Project Status Activity – Completed/Failed Review

Managers may change a project status to Completed when it fails review.

### 2.5.12.2.1 Set Status to Completed or Failed Review

#### 2.5.12.2.2 Capture Reason

The system must capture the reason for the status change.

#### 2.5.12.2.3 Send Payment Notifications

- After setting the project status to “failed review” or “completed”, the manager must view a confirmation screen with a “send payment” button.
- The “send payment” button will link to the PACTs system.

### 2.5.12.2.4 Remove Project from Project List

After a project fails review, it will be removed from the project list.

## 2.5.12.3 Edit Project Details Activity - Change Project Status Activity– Inactive

Managers may change a project status to inactive for any reason.

### 2.5.12.3.1 Set Status to Inactive

#### 2.5.12.3.2 Capture Reason

The manager must enter a reason for the status change.

#### 2.5.12.3.3 Change Status to Inactive

The project must be marked inactive and displayed as such in the project list.

## 2.5.12.4 Edit Project Details Activity - Change Project Status Activity – Failed (Zero Submissions)

Managers may change a project status to Failed when it receives zero submissions.

### 2.5.12.4.1 Set status to Failed (Zero Submissions)

#### 2.5.12.4.2 Capture Reason

The system must capture the reason for the status change

#### 2.5.12.4.3 Remove Project from List

After a projects status is marked “Failed - no submissions “, it will be removed from the project list.

## 2.6 Set Timeline Notifications

All users have the ability to specify to receive timeline change notifications.

## 2.6.1 Set Timeline Notification Activity

### 2.6.1.1 Set Timeline Notification

- Users must have the ability to choose to receive email notification when timelines change.
- The default for all project resources will be to receive the notifications

## 2.7 View Projects

### 2.7.1 View Projects Activity – View All

Users are allowed to see all active projects.

#### 2.7.1.1 Display All Projects

- Users must be able to see all projects organized by project type and category.
- The following information will be displayed for each project:
- Projects that are late will be distinguishable from other projects.
- Projects that are within 1 day of being late will be distinguishable from other projects.

Field	Description	Type	Required	Validation
Project Name	Name of the project	Text	Yes	N/A
Step	Current step in the review process	Text	Yes	N/A
Step End Date	End date of current step	Text	Yes	N/A
End Date	End date of project	Text	Yes	N/A

### 2.7.2 View Projects Activity – View Inactive

Managers are allowed to view inactive projects.

#### 2.7.2.1 Display Inactive Projects

- Active projects will display separately from inactive projects.
- Users must be able to see inactive all projects organized by project type and category.
- The following information will be displayed for each project:

Field	Description	Type	Required	Validation
Project Name	Name of the project	Text	Yes	N/A
Step	Current step in the review process	Text	Yes	N/A
Step End Date	End date of current step	Text	Yes	N/A
End Date	End date of project	Text	Yes	N/A

## 2.8 View My Project

Users (except public) will view their assigned projects.

### 2.8.1 View My Projects Activity

#### 2.8.1.1 Display My Projects

- User projects will be displayed organized by project type and category.

- Projects that are late will be distinguishable from other projects.
- Projects that are within 1 day of being late will be distinguishable from other projects.
- The following information will be displayed for each project:

Field	Description	Type	Required	Validation
Project Name	Name of the project	Text	Yes	N/A
My Role	Role of user logged in	Text	Yes	N/A
Step	Current step in the review process	Text	Yes	N/A
Step End Date	End date of current step	Text	Yes	N/A
End Date	End date of project	Text	Yes	N/A
My Next Deliverable(s)	Deliverable(s) due from user	Text	Yes	Appear when deliverables are due

## 2.9 View Project Detail

Users must be able to see certain details for a project.

### 2.9.1 View Project Detail Activity

All users are allowed to view these project details.

#### 2.9.1.1 Choose Project

- The user must first choose the project for which they wish to view.

#### 2.9.1.2 Display Project Details

##### 2.9.1.2.1 Display Project Details – All Roles

- Phases that are late will be distinguishable from other phases.
- Phases that are within 1 day (configurable) of being late will be distinguishable from other phases.
- The following project details will be available to all roles during all phases:

Field	Description	Type	Required
Project Name	Name of project	Text	Yes
Project Version	Version for project	Text	Yes
Project Description	Link to project description in catalog	Link	Yes
Software Forum	Link to project software forum	Link	Yes
Application Timeline	High-level timeline comprised of individual project timelines.	Text	No, only for applications
Notes	Project Notes	Text	No, only display when notes are available.
User Role(s)	Role(s) assigned to user	Text	Yes
Outstanding Deliverable(s)	Outstanding deliverable(s) for project	Text	No, only if deliverable(s) exist for project
Outstanding Deliverable(s) date(s)	Dates for outstanding deliverables	Text	No, only if deliverable(s) exist for project.
My Deliverable(s)	Deliverable(s) for user, link to perform	Link	No, only if



	deliverable		deliverable(s) exist for user
My Deliverable(s) dates	My deliverable(s) date(s)	Link	No, only if deliverable(s) exist
Scorecard(s)	All scorecards that exist for project including: phase associated with scorecard and scorecard name	Text	Yes
Contact Project Management	Allows users to send a message to project managers	Link	Yes

## 2.9.2 View Project Details Activity – Display Timeline

All users are allowed to view the project timeline.

### 2.9.2.1 Display Timeline

- Project timeline durations will be displayed in a graphical format.
- Project timeline phases will display in a graphical format in relation to other phases.
- The following information will be presented to all users:

Field	Description	Type
Phase Name	Name of phase	Text
Phase Status	Status of project (late, closed, open, closing)	Text
Original Start Date	Original Start Date	Text
Original End Date	Original End Date	Text
Actual Start Date	State date if project starts late or early	Text
Actual End Date	End date if project ends late or early	Text

#### 2.9.2.1.1 Phase Status

A phase can be in one of the following statuses

- Open – currently in progress
- Closing – within X number of days/hours from end date (configurable)
- Closed – all deliverables complete
- Late – phase end date has passed, deliverables not complete

#### 2.9.2.1.1.1 Registration Status

- TopCoder has color schemes to rate their members. In order of best to worst the colors are: Red, Yellow, Blue, Green and Gray.
- The online review system will make use of a color scheme to distinguish registration status.
  - Show phase color as red if no red, yellow or blue members have signed up
  - Show phase color as yellow or blue if as least one blue member has signed up.

## 2.9.3 View Project Details Activity – View My Deliverables

Users must see their deliverables for the current open phases.

### 2.9.3.1 View Deliverables

The following information will be available for users' outstanding deliverables:

Field	Description	Type
Project Role	Role of user on project	Text
Project Deliverable	Link to complete deliverable	Link

## 2.9.4 View Project Details Activity – View Outstanding Deliverables

All users can see the list of outstanding project deliverables.

### 2.9.4.1 View Deliverables

The following information will be available:

Field	Description	Type
Project Deliverable s	All outstanding deliverables for project	Text

## 2.10 View Project Resources

Managers must be allowed to view project resource information.

### 2.10.1 View Project Resources Activity

#### 2.10.1.1 Display Project Resources

The following will be available to users with the manager or observer role:

Field	Description	Type	Required
Resource Name	Name of project resource	TC member handle format	Yes
Resource Role	Role of project resource	Text	Yes

## 2.11 View SVN Link

Certain roles have permission to view the SVN link.

### 2.11.1 View SVN Link Activity

#### 2.11.1.1 Display SVN Link

The following will be available to users with the aggregator, final reviewer, reviewer, manager or observer role

Field	Description	Type	Required
SVN Link	Link to SVN module	Link	Yes

## 2.12 View All Payment Information

Managers are allowed to view all payment information.

### 2.12.1 View All Payment Information Activity

#### 2.12.1.1 Display All Payment Information

- The following will be available to users with manager and observer role:

Field	Description	Type	Required
Payment	Users payment details	Dollars	Yes
Payment Sent?	Used to denote if payment has been sent or not.	Check-Box	Yes

## 2.13 View My Payment Information

Users are allowed to view their individual payment information.

## 2.13.1 View My Payment Information Activity

### 2.13.1.1 Display My Payment Information

- The following will be available for each user:

Field	Description	Type	Required
Payment	Payment details	Text	Yes
Payment Sent?	Used to denote if payment has been sent or not.	Check-box	Yes

## 2.14 Contact Project Managers

While a user is viewing project details, they may choose to contact users with the manager role.

### 2.14.1 Contact Project Resources Activity

#### 2.14.1.1 Capture Message

The user may enter a text message.

#### 2.14.1.2 Send Message

After the message is sent, the user will be notified and have the option to return to the project details page, send another message, or return to their project list.

## 2.15 View Registrations

Users with the manager and observer role are allowed to view registrations during the registration phase.

### 2.15.1 View Registrations Activity

#### 2.15.1.1 Choose Project

The user must first choose the project for which they wish to view registrations.

#### 2.15.1.2 View Registrations

The following information will be displayed for each registration:

Field	Description	Type	Required
User handle	User handle with TC member handle color scheme and link to member profile	Link	Yes
Email link	Link to email member	Link	Yes
Registration Date	Date user registered for project	Text	Yes
Rating	Rating the person was when they signed up for that competition	Text	Yes
Reliability Rating	Rating the person was when they signed up for that competition	Text	Yes

## 2.16 Perform Submission

Only users with the submitter role are allowed to submit.

### 2.16.1 Perform Submission Activity

#### 2.16.1.1 Submit Document

Submitters must be allowed to upload their submissions.

#### 2.16.1.2 Auto Screen Submission

- Automatic screening results must be displayed after submission
- Automated screening must be set up for all submission phases
- Automated screening may exist of zero or more specified rules
- If the user has a submission waiting to be auto screened and submits a new submission, the new submission will be placed at the end of the auto screening queue and the old submission will be removed.
- If the user has a submission that is currently being auto screened and submits a new submission, when auto screening completes the old submission will be removed and the new submission will be placed at the end of the auto screening queue
- If the user has a submission that has been auto screened but not manually screened and submits a new submission, the old submission will be taken off the manual screening queue and the new submission will be placed at the end of the auto screening queue.
- If the user has a submission that is currently being manually screened and submits a new submission, the old submission will finish manual screening and then be deactivated, the new submission will be placed at the end of the auto screening queue.
- If the user has a submission that has been manually screened but not reviewed and submits a new submission, the old submission will be inactivated and the new submission will be placed at the end of the auto screening queue.

#### 2.16.1.3 Generate Unique Id

- The system must track each user's submissions and assign each submitter a unique id for each project to which they submit solutions (i.e. user XXX submitting for projects Y and Z might be assigned "Submitter 1500" and "Submitter 1501" respectively, but if user XXX submits a correction for project Y, they are still "Submitter 1500" and the file must be stored accordingly).
- These unique ids must be unique system-wide.
- Submitters must be referred to by this generic name throughout the application to maintain their anonymity during review.

#### 2.16.1.4 Manual Screen Submission

- If manual screening is required, submissions are not complete until the submission passes manual screening.
- Only submissions that pass manual screening will be passed to review.
- Manual screening results must be displayed to the user.

## 2.17 View All Submissions

Managers are allowed to see all submissions, including the past uploads from submitters.

### 2.17.1 View All Submissions Activity

#### 2.17.1.1 Display Submissions

- Submissions must be displayed in each phase of the project
- Submissions must be sorted by submission id.
- Submissions that have deliverables that are late must be distinguishable from other submissions.
- Submissions that have deliverables that are 1 day (configurable) from being late must be distinguishable from other submissions.

Field	Description	Type
Submission ID	Link to download submissions	Link
Submitter Handle	Handle of submitter, TopCoder color scheme and link to member profile	Link
Submission Status	Used to identify when submission have deliverables that are late or near late.	Icon
Submission Date	Date of submission	Text
Automated screening result	Link to automated screening results	Link
Previous Submissions	List of previously submitted projects per user (link to download), <b>sorted by most recently uploaded</b>	Link

## 2.18 View My Submissions

Submitters must be allowed to view all of their submissions, including past submissions.

### 2.18.1 View My Submissions Activity

#### 2.18.1.1 Display Submissions

- Submissions must be displayed in each phase of the project
- Submissions must be sorted by submission id.
- Submissions that have deliverables that are late must be distinguishable from other submissions.
- Submissions that have deliverables that are 1 day (configurable) from being late must be distinguishable from other submissions.

Field	Description	Type
Submission ID	Link to download submissions	Link
Submitter Handle	Handle of submitter	Displayed in TopCoder color format.
Submission Status	Used to identify when submission have deliverables that are late or near late.	Icon
Submission Date	Date of submission	Text
Automated screening result	Link to automated screening results	Link
Previous Submissions	List of previously submitted projects per user (link to download)	Link

## 2.19 View Screener Submissions

Screeners are allowed to view the submissions for project for which they are the assigned screener.

### 2.19.1 View Screener Submissions Activity

#### 2.19.1.1 Display Submissions

- Submissions must be displayed when the screener is assigned the submission.
- Submissions must be sorted by submission id.
- Submissions that have deliverables that are late must be distinguishable from other submissions.
- Submissions that have deliverables that are 1 day (configurable) from being late must be

distinguishable from other submissions.

Field	Description	Type
Submission ID	Link to download submissions	Link
Submission Status	Used to identify when submission have deliverables that are late or near late.	Icon
Submission Date	Date of submission	Text
Automated screening result	Link to automated screening results	Link

## 2.20 View Most Recent Submissions

The Observer and Reviewer roles will see the most recent submission from submitters.

### 2.20.1 View Most Recent Submissions Activity

#### 2.20.1.1 Display Submissions

- Submissions must be displayed in each phase of the project
- Submissions must be sorted by submission id.
- Submissions that have deliverables that are late must be distinguishable from other submissions.
- Submissions that have deliverables that are 1 day (configurable) from being late must be distinguishable from other submissions.

Field	Description	Type
Submission ID	Link to download submissions	Link
Submission Status	Used to identify when submission have deliverables that are late or near late.	Icon
Submission Date	Date of submission	Text
Automated screening result	Link to automated screening results	Link

## 2.21 View Winning Submission

All users may view all details for the winning submission. The winning submission is announced after the appeals response phase.

### 2.21.1 View Winning Submission Activity

#### 2.21.1.1 Display Submission

- Submission must be displayed after the winner is announced.
- The system must identify winning submissions that have late deliverables.
- The system must identify winning submissions that have deliverables that are within 1 day (configurable) from being late.

Field	Description	Type
Submission ID	Link to download submissions	Link
Submission Status	Used to identify when submission have deliverables that are late or near late.	Icon
Submission Date	Date of submission	Text
Automated screening result	Link to automated screening results	Link

## 2.22 View Most Recent Submissions after Appeals Response

After the appeals response phase users are allowed to view all details for the most recent submissions.

### 2.22.1 View Most Recent Submissions after Appeals Response Activity

#### 2.22.1.1 Display Submissions

- Submissions must be displayed after Appeals Response.
- Submissions must be sorted by submission id.

Field	Description	Type
Submission ID	ID for submission (no link to download for public)	Link
Submission Status	Used to identify when submission have deliverables that are late or near late.	Icon
Submission Date	Date of submission	Text
Automated screening result	Link to automated screening results	Link

## 2.23 Remove Submission

Managers are allowed to remove submissions.

### 2.23.1 Remove Submission Activity

#### 2.23.1.1 Select Submission

The manager must first select the submission they wish to remove.

#### 2.23.1.2 Confirm Remove

The Manager must confirm the submission removal.

#### 2.23.1.3 Remove Submission

- Managers may remove submissions.
- Submissions must not be deleted from the system.

## 2.27 Upload Test Cases

Test Case Reviewers must receive a visual notification of their test case deliverable until they have submitted their test cases. Test Case Reviewers are allowed to re-upload their test cases until the final fix phase.

### 2.27.1 Upload Test Cases Activity

#### 2.27.1.1 Upload Test Case

Test case reviewers must upload their test cases during review.

Test case reviewers may re-upload their test cases until the final fix phase is completed.

#### 2.27.1.2 Email Notifications

- When test cases are re-uploaded, active submitters, reviewers and managers must receive an email notification.
- Email notifications must not go to the reviewer performing the re-upload

## 2.40 Perform Final Fix

Submitters must submit final fixes for items marked as required in the aggregation scorecard.

## 2.40.1 *Perform Final Fix Activity*

### 2.40.1.1 Upload Final Fix

The submitter may browse for the file to upload and upload their solution.

## 2.41 Download Final Fix

The Manager, Observer, Submitter, Final Reviewer and Approver roles may download final fixes.

### 2.41.1 *Download Final Fix Activity*

#### 2.41.1.1 Select Final Fix

The user must select the final fix to download

#### 2.41.1.2 Download Final Fix

The final fix will download to the users machine.

## 2.48 End Phase

### 2.48.1 *End Phase Activity – Submission*

Activity to end the submission phase.

#### 2.48.1.1 End Date for Submission Met

The Submission phase must always last until the submission end date.

#### 2.48.1.2 Manual Screening Required

The system must check to see if manual screenings are required.

#### 2.48.1.3 Number of Submissions Pass

- If manual screening is required, the system must check to see if the required numbers of submissions have passed manual screening and auto-screening.
- Submission will close when the required number of submissions has passed auto and manual screening, but all received submissions must get screened and passing submissions will be passed to review.

#### 2.48.1.4 Number of Submissions Met

- If manual screening is not required, the system must check to see if the required number of submissions have been met and passed auto-screening.
- Submission will close when the required number of submissions has passed auto-screening, but all received submissions must get auto-screened and passing submissions will be passed to review.

#### 2.48.1.5 End Phase

The system must advance the project into the next phase.

### 2.48.2 *End Phase Activity – Review*

Activity to end the review phase.

#### 2.48.2.1 Check for End of Previous Phase

The system must check for the end of the previous phase.



## 2.48.2.2 Check All Test Cases Uploaded

If the project has Test Case Reviewers (accuracy, stress or failure) the system must check that all test cases are uploaded.

## 2.48.2.3 Check All Reviews Complete

The system must ensure that all reviews are complete.

## 2.48.2.4 End Phase

The system must advance the project into the next phase.

## 2.48.3 End Phase Activity – Appeals

Activity to end the appeals phase.

### 2.48.3.1 Check for End of Review Phase

The system must ensure the review phase has ended.

### 2.48.3.2 Check Appeal Time

The system must ensure submitters are given the required amount of time to post appeals.

### 2.48.3.3 End Phase

When the required amount of time for appeals has elapsed, the system must advance the project into the next phase.

## 2.48.4 End Phase Activity – Appeals Response

Activity to end the appeals response phase.

### 2.48.4.1 Check for End of Appeals Phase

The system must ensure the appeals phase has ended.

### 2.48.4.2 Check All Appeals Have Responses

The system must ensure that all appeals have responses.

### 2.48.4.3 End Phase

The system must advance the project to the next phase

### 2.48.4.4 Determine Winner

- At the end of the review phase the winner will be determined and presented.
- The winner is the submission with the highest score.
- Project standings must be displayed; the submissions with the top three scores will be displayed.

#### 2.48.4.4.1 Tiebreaker Rules

If there is a tie in a component competition, the tied competitors will be evaluated based on all three individual review scores. The competitor that places the highest the most times will be awarded the victory. For example, if competitor A gets scores (95, 95, 90) and competitor B gets scores (100, 100, 80), competitor B wins since even with the scores being tied, two individual reviewers award him the victory.

## 2.48.5 End Phase Activity – Aggregation

Activity to end the aggregation phase.

2.48.5.1            Appeals Response Phase Complete  
The system must ensure the appeals response phase is complete

2.48.5.2            Aggregation Complete  
The system must ensure the aggregation is complete

2.48.5.3            End Phase  
The system must advance the project to the next phase.

## *2.48.6 End Phase Activity – Aggregation Review*

Activity to end the aggregation review phase.

2.53.6.1 Aggregation Phase Complete  
The system must ensure the aggregation phase is complete

2.53.6.2 Aggregation Reviews Complete

- The system must ensure the aggregation reviews are complete.
- One aggregation review is required from each reviewer

2.53.6.3 End Phase  
The system must advance the project to the next phase.

## *2.48.7 End Phase Activity – Final Fix*

Activity to end the final fix phase.

2.48.7.1            Previous Phase Complete  
The system must ensure the previous phase is complete

2.48.7.2            Final Fixes Submitted  
The system must ensure all final fixes are submitted.

2.48.7.3            Aggregation Scorecard Approved  
The system must ensure the submitter has approved the aggregation scorecard comments.

2.48.7.4            End Phase  
The system must advance the project to the next phase.

## *2.48.8 End Phase Activity – Final Review*

Activity to end the final review phase.

2.48.8.1            Final Fix Phase Ended  
The system must ensure the final fix phase has ended

2.48.8.2            Final Review Complete  
The system must ensure the final review is complete.

2.48.8.3            End Phase  
The system must advance the project to the next phase.

## *2.48.9 End Phase Activity – Approval*

Activity to end the approval phase.

2.48.9.1            Previous Phase Ended  
The system must ensure the previous phase has ended.

## 2.48.9.2 Approval Complete

The system must ensure the approval is complete.

## 2.48.9.3 End Phase

The system must advance the project to the next phase.

## 2.49 Advance Submission

The system must check to see if a submission is able to advance to the next phase.

### 2.49.1 Advance Submission Activity

#### 2.49.1.1 Deliverable Complete

The system must get notified when deliverables are completed.

#### 2.49.1.2 Next Phase Open

The system must check to see if the next phase is open.

#### 2.49.1.3 Advance Submission

If the next phase is open, the system must advance the submission to the next phase.

## 2.50 Post Deliverables

The system must post outstanding deliverables and user deliverables.

### 2.50.1 Post Deliverables Activity

#### 2.50.1.1 Post Deliverables

- The system must post outstanding user deliverables and outstanding project deliverables on every page.
- The system must distinguish late deliverables.
- Deliverables for each phase are listed below:
  - Registration
    - registrations
  - Submission
    - submissions
  - Screening
    - Screening scorecards for each submission
  - Review
    - Review scorecards for each submission
    - Test cases for (failure, stress and accuracy reviewers)
  - Appeals
    - Appeals (if any)
  - Appeals Response
    - Appeal responses
  - Aggregation
    - Aggregation
  - Aggregation Review
    - Aggregation reviews
  - Final Fix
    - Final fixes (if any)
    - Aggregation Scorecard Comment Approval
  - Final Review
    - Final review

- Approval
  - Approver approval

## 2.51 Download Test Cases

The Manager, Observer, Submitter, Reviewer and Approver roles may download test cases.

### 2.51.1 Download Test Cases Activity

#### 2.51.1.1 Select Test Case

The user must select the test case to download

#### 2.51.1.2 Download Test Case

The test case will download to the users machine.

## 3. Technical Requirements

### 3.1 Graphical User Interface Requirements

Graphical User Interface will be built as a series of JSP pages.

#### 3.1.1 General Display

Information must be able to be stored without refreshing the entire screen.

#### 3.1.2 Member Handles

All member handles must display in the TopCoder member handle color scheme with a link to member profile.

#### 3.1.3 Timeline Phase Dependencies

When project timelines are displayed the GUI must provide indication of phase dependencies in the timeline display itself.

#### 3.1.4 Project Deadlines

The GUI for the project list must indicate when projects are nearing their due date or behind schedule. For example projects that are near their due date could be displayed in yellow and projects that are past their due date could be displayed in red.

#### 3.1.5 Phase Deadlines

The GUI for timeline phases must indicate when phases are behind schedule. For example phases that are near their due date could be displayed in yellow and phases that are past their due date could be displayed in red.

#### 3.1.6 Tool Tips

Tool Tips should be displayed for items requiring additional information.

#### 3.1.7 Browser Support

The application must work in both IE 6.0.+ and Firefox 1.5.+ on Windows (XP, 2000) and Firefox 1.5.+ on Mac O/S.

#### 3.1.8 HTML will follow XHTML standards

#### 3.1.9 CSS

The look and fell, as well as the branding of the UI, should be easily changed by modifying or replacing style sheets.

## 3.1.10 GUI Must Conform to Prototype

The prototype developed by the

TopCoder Software Information Architect provides a detailed example of the look and feel of the final application. Any changes made during later phases must be noted.

## 3.2 Communication Interfaces

### 3.2.1 HTTP

This will be used by users to access the non-secure areas of the website over the internet. Port 80 (standard) will be used.

### 3.2.2 HTTPS

This will be used by customers to access the secure parts of the site over the internet. Port 443 (standard) will be used.

### 3.2.3 JDBC

The application will connect to the database via JDBC.

### 3.2.4 SMTP

SMTP will be used between JBoss and the SMTP server to send mail from the application.

### 3.2.5 Web Services

In order to facilitate offline reviews in future phases; Web Services must be used to perform communication between the client app and the application servers.

## 3.3 Environment Requirements

### 3.3.1 Operating System[s]

Web Servers – RedHat Linux 9  
Application Servers – RedHat Enterprise Linux 4  
Database Servers – RedHat Linux 7.1

### 3.3.2 Software Development Versions

Java 1.4.2

### 3.3.3 Database

Informix 10.00.UC3R1

### 3.3.4 Application Server

JBoss 4.0.2

### 3.3.5 Servlet Engine

Tomcat 5.5

### 3.3.6 mod\_jk

### 3.3.7 Web Server

Apache 1.2

### 3.3.8 Hardware

Web Servers – Dual Intel 860Mhz

Application Servers – Dual Intel 3.6Ghz

Database Servers – Quad Intel 700Mhz

Firewall – Cisco Pix

Local Director – Cisco port based load balancer

### 3.3.9 *Replicated Environment*

The Online Review application will run in a replicated environment.

## 3.4 **Are there particular frameworks or standards that are required?**

- JSPs will follow Struts framework
- JDBC will be used for database access

## 3.5 **Third Party Component, Library, or Product Dependencies**

### 3.5.1 *AJAX*

AJAX is required for general display GUI requirements.

### 3.5.2 *JavaMail*

JavaMail will be used to facilitate the SMTP communication.

## 3.6 **Design Constraints**

### 3.6.1 *J2EE*

### 3.6.2 *Auditing*

Auditing must be performed during all project editing, creation and deletions. Each audit will contain information about who performed the modification, when the modification was performed and the information that was modified.

### 3.6.3 *Deletes*

The system must not delete information from the database.

### 3.6.4 *Web Services*

All information should be stored in the back end in a way to support various front end clients.

### 3.6.5 *Session Maintenance*

The system must allow users to perform simultaneous edits and/or viewing among multiple browser sessions

### 3.6.6 *Validation*

The system must perform validation with both front end and back end logic.

## 3.7 **Performance Constraints**

### 3.7.1 *Page Load Performance*

An average page load time of 2 seconds will exist.

## 3.8 Security

### 3.8.1 Security Roles

#### 3.8.1.1 Permissions

All security checks will occur against permissions. Each function in the system will validate a user's permission against the required permission for the task.

#### 3.8.1.2 Roles

One or more permissions will be assigned to roles. A user may have more than one role.

Below is a list of roles and permissions:

	Manager	Observer	Submitter	Screener	Reviewer	Aggregator	Final Reviewer	Approver	Public	Designer	System
Create Scorecard	X										
Edit Scorecard	X										
View Scorecards	X										
Create Project	X										
Edit Project Details	X										
Set Timeline Notifications	X	X	X	X	X	X	X	X		X	
View Projects	X								X		
View My Projects	X	X	X	X	X	X	X	X		X	
View Projects Inactive	X										
View Project Detail	X	X	X	X	X	X	X	X	X	X	
View Project Resources	X	X									
View SVN Link	X	X			X	X	X				
View All Payment Information	X	X									
View My Payment Information			X	X	X	X	X	X			
Contact Project Managers	X	X	X	X	X	X	X	X	X	X	
View Registrations	X	X									
Perform Submission			X								
View All Submissions	X							X			
View My Submissions			X								
View Screener Submission				X							
View Most		X			X						

Recent Submissions											
View Winning Submission						X	X		X	X	
View Most Recent after Appeals Response									X	X	
Remove Submission	X										
Perform Screening				X							
View Screening	X	X	X	X		X	X	X	X	X	
Perform Review					X						
Upload Test Cases					X						
Download Test Cases	X	X	X		X			X			
View All Reviews	X	X	X		X	X	X	X	X	X	
View Reviewer Reviews					X						
View Composite Scorecard	X	X	X			X			X		
Edit My Review during Review				X							
Perform Appeal			X								
View Appeals	X	X	X		X			X	X	X	
Perform Appeals Response					X						
View Appeal Responses	X	X	X		X			X	X	X	
Edit My Appeal Response during Appeals Response					X						
Perform Aggregation					X						
View Aggregation	X	X	X		X			X	X	X	
Perform Aggregation Review						X					
View Aggregation Review	X	X	X		X			X	X	X	
Perform Final Fix			X								
Download Final Fix	X	X	X				X	X			
Perform Final Review							X				
View Final Review	X	X	X				X	X	X	X	



Submit Scorecard Comment			X								
Perform Approval	X							X			
View Approval	X	X	X					X			
Edit Any Scorecard	X										
End Phase											X
Advance Submission											X
Post Deliverables											X

## 3.8.2 Password Logic

Password logic will be handled outside of this application.

## 4. Required Documentation

### 4.1 Specification Documentation

- Requirements Specification (this document)
- High Level Use Case Diagrams
- Activity Diagrams
- Architecture Diagram
- Logical data model (as needed)
- Site Map
- Site Definition
- User Interface Prototype
- Quality Assurance Plan
- High Level Test Scenarios

## 5. Help / User Documentation

## 6. Notes

## 7. Future Enhancements

### 7.1 Offline Scorecards

The application must allow users to perform all reviews while offline. Users may download review scorecards and complete them offline, when a user returns online they may upload the completed scorecard.

### 7.2 Dynamic Question Types

Scorecard questions will have the ability to be generated dynamically based on an XML document.

## 8. Glossary

### 8.1 Definitions

#### 8.1.1 Project

A set of phases, submissions and deliverables used to perform a review of various software application process components.

## 8.1.2 *Submission*

The items being reviewed in the Online Review process.

## 8.1.3 *Deliverable*

A document or process requirement set forth by the phase. Each phase has 1 or more deliverables. Deliverables must exist before the project phase advances.

## 8.1.4 *Phase*

A state an active project exists in at any given time. The project can only exist in one phase at a time. Each phase has a specified set of deliverables.

## 8.2 **Acronyms**