

Web Based Conference Management System

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Systems Analysis and Design
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Web Based Conference Management System

Purpose:

To create a conference management system for the Midwest Decision Sciences Institutes annual meeting this is organized by the University of Toledo Information Operations and Technology Management department.

Why and How?

The Midwest Decision Sciences Institute initiated the project for their annual conference meeting by having the University of Toledo Information Operations and Technology Management department create

a web based Conference Management System.

Important Features and Functionality:

This Conference Management System will allow authors to submit papers to be reviewed by a panel of reviewers in order to present their subject matter at the Midwest Decision Sciences Institute's Annual meeting. Authors will be able to web register and make their payment online and conference management board will be able to product many interim reports, schedule rooms and communicate with the authors. The system developed will allow for end-to-end management of the conference.

Systems Request Form

Project Sponsor: The Midwest Decisions Science Institute

Business Need: This project has been initiated to develop a web based Conference Management System for the Midwest Decision Sciences Institute's Annual meeting.

Business Requirements:

Using the web, authors are able to submit papers to the Midwest Decisions Science Institute. The track chair will assign the paper to reviewers, who will accept or deny the paper. If the paper is accepted, the paper must be resubmitted and the author must pay a 150 registration fee. The functionality that the system should have is as follows:

- Allow authors to submit papers.
- Assign papers to specific tracks based on subject matter.
- Allow the track chair to assign papers to reviewers.
- Allow accepted papers to be resubmitted.
- Accept registration payments for the conference.
- Time management through the duration of the conference.

Business Value:

We expect this Conference Management System to improve the overall efficiency of the Midwest Decision Sciences Institute's Annual Meetings. The new system will allow for increased participation by making it easier for authors to submit, and allowing the Track Chair to review, papers. This Content Management System will allow the Midwest Decision Sciences Institute to receive payments from authors prior to the conference to pay for overhead expenses.

Special Issues or Constraints:

System has to be completed prior to April 2011 when papers need to be submitted.

Security Clearance needed by project team to ensure submissions is to be only reviewed by the individuals who are assigned by the track chair. At least one of the authors of all accepted papers must register for the conference by the deadline.

Feasibility Analysis**Technical Feasibility**

The conference management system is feasible technically, however there is some risk.

Risks regarding familiarity with web based conference management systems are high.

- The MDSI has little experience with web based conference management systems.
- The development team has little knowledge of the companies experience in the field however they have the knowledge to create a web based management system.
- There are many retail web based conference systems in the marketplace.

MDSI's risk regarding familiarity regarding technology is medium.

- The development team has experience with using web based applications.
- The development team plans on using open sourced programming languages to provide maximum support and decrease costs.
- It is possible to hire outside consulting firms to provide additional help.

The project size is considered low risk.

- The project team is going to include less than 10 people.
- The project time frame is just under a year.
- The overall size of the project is considered to be small as it is to web enable a conference management system. It is not a heavy transaction oriented system.

The compatibility with MDSI's current technical infrastructure should be medium risk.

- There is currently no conference management system in place.
- MDSI may not have the proper accommodations to support such network traffic.
- There is no current internet network structure to deal with their current meetings.

Economic feasibility

A thorough cost benefit analysis was performed. University has to incur a significant onetime cost for the system implementation and then there are operational and maintenance costs for the software and hardware. Please see the attached screen shot for the cost benefit analysis. Apart from cost savings in terms of reduction temporary staff, the system also provides some intangible benefits. Following are the highlights of this analysis

ROI over a period of five years is 9.42%

Break-even occurs after 4.4 years and after that there will be annual cost savings of at least \$59,000.00

Intangible costs and benefits

Name Recognition as the best conference hosting venue

Improved efficiency

The economic risk is medium considering the upfront costs and the time to realize the economic benefits

(break even occurs after 4 years).

Cost Benefit Analysis for						
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Conference Management system						
Assumed Interest rate is 3% for PV calculation						
	Year	Year	Year	Year	Year	
	1	2	3	4	5	
Benefits						Total
Reduction of Temp Staff	50000	53000	56180	59551	63124	
Increased conference participation/future opportunities	30000	31800	33708	35730	37874	
Total Benefits	80000	84800	89888	95281	100998	
PV of Benefits	77670	79932	82260	84656	87122	411640
PV of All Benefits	77670	157602	239862	324518	411640	
Costs						
Cost of Hardware	100000	0	0	0	0	
Operating costs	10000	10600	11236	11910	12625	
Maintenance costs	5000	5300	5618	5955	6312	
software & Licensing Costs	20000	2000	2000	2000	2000	
Consulting and Software development costs	140000	10000	10600	11236	11910	
Total Costs	275000	27900	29454	31101	32847	
PV of Costs	266990	26298	26955	27633	28334	376210
PV of ALL COSTS	266990	293288	320243	347876	376210	
Total Benefits - Costs	-195000	56900	60434	64180	68151	
Yearly NPV	-189320	53634	55305	57023	58788	35430
Cumulative NPV	-189320	-135686	-80381	-23358	35430	
Return on Investment	9.42%					
Breakeven point	4.4years					
Intangible benefits	Name Recognition as the best conference hosting venue Improve Efficiency					

Organizational feasibility

The idea of automating the conference management system will align with the organization's overall mission of improving efficiency across all operations. The project itself is not a challenging one technology wise and thus has very low organizational risk. The cost benefit analysis model developed

before also helps the organization to take a positive decision considering future opportunities for the University to host many more technology conferences. The risk is low in terms of organizational feasibility

Effort, Cost and Duration estimation

Function Point Analysis

Based on the diagram provided the system will have 8 IAF or Internal Logical Files. Every entity becomes an IAF. We have eight tables and they are ReviewPanel, Reservation, Author, PaperSubmission, Registration, Payment, PaperReview and finally Survey. None of the IAFs fall under High complexity category. We have one average complexity IAFs which is PaperReview and two high complexity IAFs which are Reservation as it has to access the external system for rooms availability, and then Registration. Registration is also considered high complexity due to the nature of accepting multiple forms of payment. Reservation interface with an external system which maintains rooms availability. There is one average complexity EIF.

The two main external inputs (EI) are paper submission and registration. Paper submission is low in complexity and Registration is of average complexity as it has to handle payments.

There will be a number of external outputs (EO)s in this application which includes sending the review results of paper, looking up room availability, generate reports on Tracks and Rooms, list of papers submitted, list of papers accepted, list of papers which were not accepted, name tags, payment receipts and generate report on survey results. We have identified 9 EOs and 3 of them are of low complexity, 5 of them are average complexity and 1 on them is high complexity. Printing name tags is considered as high complexity EO as it will involve printing on a pre-formatted paper.

We have identified one external enquiry EQ which is authors checking the status of their paper and this one is low complexity.

Function point analysis was performed using Microsoft Excel. Screen shots are attached. Based on our calculation, the total unadjusted function points (UAF) is 136.

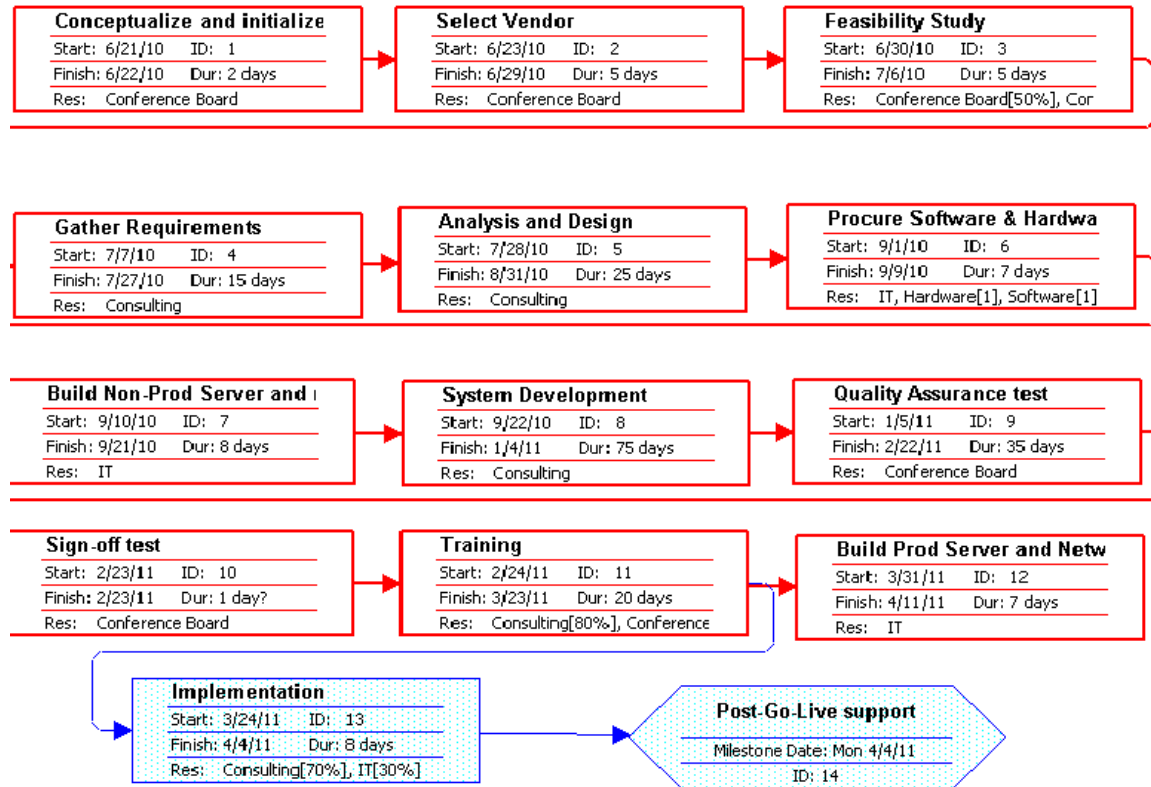
After including the degree of influence which is in our case 31, the total adjusted function point FP is 131.

Function Point analysis										
UAF computation based on the data given										
Data and Transaction Types	Low	Weight	Total	Average	Weight	Total	High	Weight	Total	Total
IAF	57		35	1	10	10	2	15	30	75
EIF	05		0	1	7	7	0	10	0	7
EIF	13		3	1	4	4	0	6	0	7
EO	34		12	5	5	25	1	7	7	44
EQ	13		3	0	4	0	0	6	0	3
Total unadjusted function points (UAF)										
										136

General System Characteristics	DI
Data communications	4
Distributed data processing	0
performance	2
Heavily used configuration	3
Transaction rate	4
On-line data entry	3
End user efficiency	3
Online update	1
Complex processing	3
Reusability	3
Installation ease	2
Operation ease	2
Multiple sites	0
Facilitate change	1
TDI	31

Value Adjustment Factor $VAF = (TDI * 0.01) + .65$	0.96
Total adjusted Function Points $FP = UAF * VAF (210 * 0.98)$	131

Network Diagram



Cost

Budget Report as of Sun 6/20/10
FinalProjectPlan

ID	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance
6	Procure Software & Hardware	\$0.00	Pro rated	\$122,800.00	\$0.00	\$122,800.00
8	System Development	\$0.00	Pro rated	\$60,000.00	\$0.00	\$60,000.00
5	Analysis and Design	\$0.00	Pro rated	\$20,000.00	\$0.00	\$20,000.00
11	Training	\$0.00	Pro rated	\$13,400.00	\$0.00	\$13,400.00
4	Gather Requirements	\$0.00	Pro rated	\$12,000.00	\$0.00	\$12,000.00
9	Quality Assurance test	\$0.00	Pro rated	\$8,400.00	\$0.00	\$8,400.00
13	Implementation	\$0.00	Pro rated	\$5,126.15	\$0.00	\$5,126.15
7	Build Non-Prod Server and network	\$0.00	Pro rated	\$3,200.00	\$0.00	\$3,200.00
12	Build Prod Server and Network	\$0.00	Pro rated	\$2,800.00	\$0.00	\$2,800.00
3	Feasibility Study	\$0.00	Pro rated	\$1,933.33	\$0.00	\$1,933.33
2	Select Vendor	\$0.00	Pro rated	\$1,200.00	\$0.00	\$1,200.00
1	Conceptualize and initialize the project	\$0.00	Pro rated	\$480.00	\$0.00	\$480.00
10	Sign-off test	\$0.00	Pro rated	\$240.00	\$0.00	\$240.00
14	Post-Go-Live support	\$0.00	Pro rated	\$0.00	\$0.00	\$0.00
		\$0.00		\$251,579.48	\$0.00	\$251,579.48

Duration

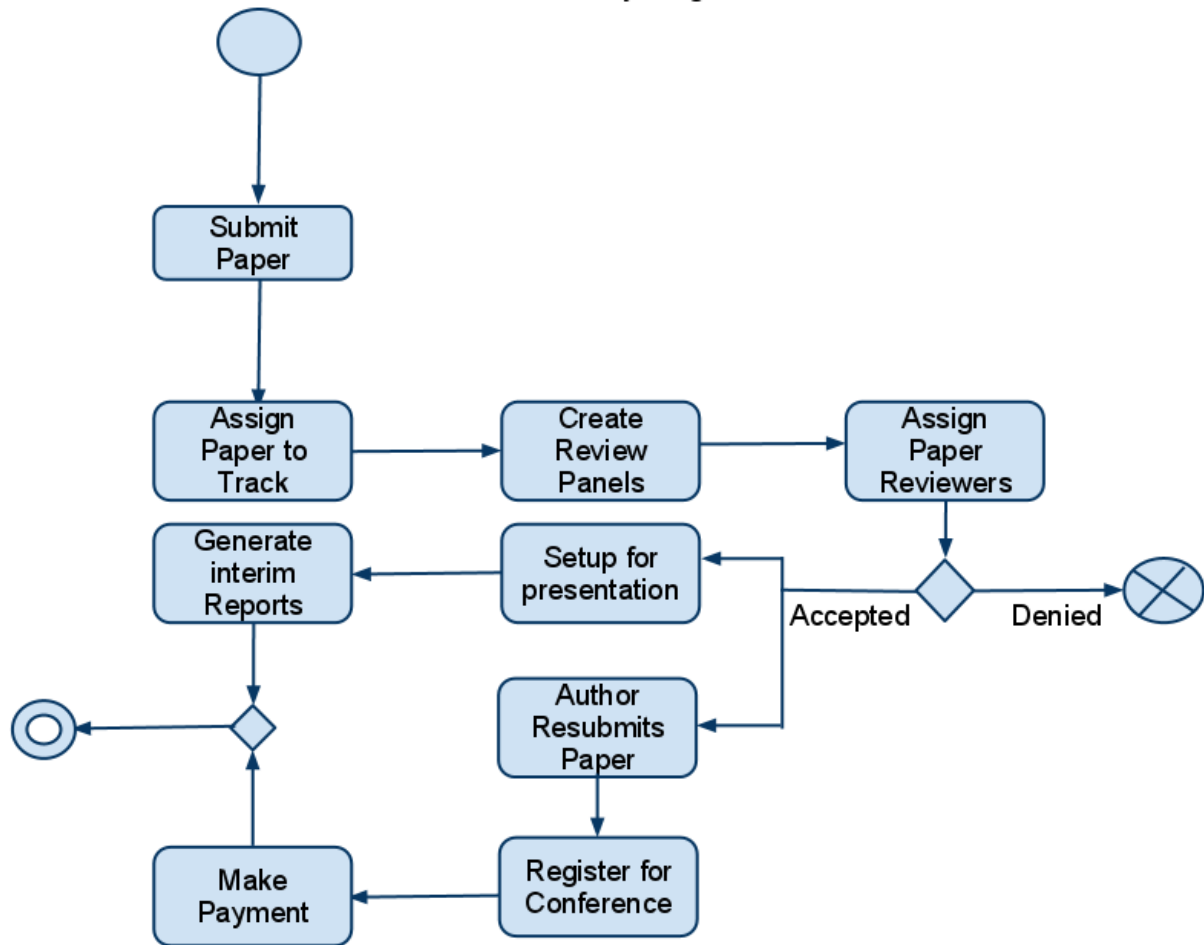
		Task Name	Duration	Start	Finish	Predecessors	Resource Names
1		Conceptualize and initialize the project	2 days	Mon 6/21/10	Tue 6/22/10		Conference Board
2		Select Vendor	5 days	Wed 6/23/10	Tue 6/29/10	1	Conference Board
3		Feasibility Study	5 days	Wed 6/30/10	Tue 7/6/10	2	Conference Board[50%],Consulting[50%]
4		Gather Requirements	15 days	Wed 7/7/10	Tue 7/27/10	3	Consulting
5		Analysis and Design	25 days	Wed 7/28/10	Tue 8/31/10	4	Consulting
6		Procure Software & Hardware	7 days	Wed 9/1/10	Thu 9/9/10	5	IT,Hardware[1],Software[1]
7		Build Non-Prod Server and network	8 days	Fri 9/10/10	Tue 9/21/10	6	IT
8		System Development	75 days	Wed 9/22/10	Tue 1/4/11	7	Consulting
9		Quality Assurance test	35 days	Wed 1/5/11	Tue 2/22/11	8	Conference Board
10		Sign-off test	1 day?	Wed 2/23/11	Wed 2/23/11	9	Conference Board
11		Training	20 days	Thu 2/24/11	Wed 3/23/11	10	Consulting[80%],Conference Board[20%]
12		Build Prod Server and Network	7 days	Thu 2/24/11	Fri 3/4/11	10	IT
13		Implementation	8 days	Thu 3/24/11	Mon 4/4/11	11	Consulting[70%],IT[30%]
14		Post-Go-Live support	0 days	Mon 4/4/11	Mon 4/4/11	13	IT

Resource Graph

Please refer the electronic copy of the Microsoft Project Plan for Resource Graph

Functional Modeling

Activity Diagram



Use Case

Subject

Conference Management System (CMS)

Actors

Conference Management Board or (CMB) (Role played by UT's IOTM Dept)

TrackChair (Role played by the chairman who oversees assigning papers to different tracks)

ReviewPanel (Role played by reviewers)

Author (Role played by professors and researchers from various schools who wants to present their paper)

Assumptions

Room scheduling system will be an external system actor. Activity Reservation will have an include relationship with this external system.

Similarly, "Payment Processing System" will be an external system actor. When authors pay their registration fee, "Make Payment" use case will have an include relationship with this system.

Use cases

CMB will "Manage conference Information", this include sub cases "Room reservation", "Manage

Survey feedback”, “Generate reports and tags”, “Communicate decision to authors”. Track Chair will “Manage Track” which can be “Assign paper to track” and “Assign Paper to Review Panel”

ReviewPanel will manage “Review Paper” use case which includes sub tasks “Accept paper”, “Refuse Paper”. “Manage Conference Information” use case will have an extend relationship with “Review Paper” use case.

Authors role will manage “Register for conference” use case which includes tasks “Submit Paper”, “Register” and “Make Payment”. “Make Payment” will have include relationship with external system actor “Payment Processing system”

Use Case Diagram



Include Make Payment Extend Register for Conference Registration Submit Paper Extend
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Use Case Descriptions

Manage Conference Information

Use Case Name: Manage Conference Information	ID: 1	Importance Level: HIGH
Primary Actor: Conference Board	Use Case Type: Detail, Essential	
Stakeholders and Interests: Conference Board - manages all information for conference		
Brief Description: Manages everything related to the conference itself		
Trigger: Conference is scheduled to take place Type: Internal		
Relationships: Association: Include: Extend: Manage Feedback, Inform authors, Generate Reports/Tags, Schedule Rooms Generalization:		
Normal Flow of Events: 1. Conference Board Decides to have a conference 2. Conference Board manages conference information 3. 4. 5.		
Subflows:		
Alternate/exceptional Flows: Conference board decides to not		

have a conference		
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Manage Paper Review

Use Case Name: Manage Paper Review	ID: 2	Importance Level: HIGH
Primary Actor: Track Chair	Use Case Type: Detail	
Stakeholders and Interests: Authors - track chair decides who reviews papers		
Brief Description: Papers are assigned tracks and based on that the track chair assigns papers to review panels		
Trigger: Paper is assigned to a track Type: External		
Relationships: Association: Include: Extend: Assign paper to review panel Generalization:		
Normal Flow of Events: 1. Author submits paper 2. Manage paper review puts paper in a track 3. Track chair assigns paper to review panels 4. 5.		
Subflows:		
Alternate/exceptional Flows:		

Assign Paper to Review Panel

Use Case Name: Assign Paper to Review Panel	ID: 3	Importance Level: HIGH
Primary Actor: Track Chair	Use Case Type: Essential	
Stakeholders and Interests: Authors - wants paper to accepted by panel		

Conference Board - Needs review panel to accept only the best papers		
Brief Description: Track chair assigns papers to review panel		
Trigger: Paper is assigned a track after it is submitted Type: Internal		
Relationships: Association: Include: Extend: Generalization:		
Normal Flow of Events: 1. Authors submit papers 2. Papers assigned to tracks 3. Track chair assigns papers to review panel 4. Review panel accepts or denies papers 5.		
Subflows:		
Alternate/exceptional Flows:		

Review Paper

Use Case Name: Review Papers	ID: 4	Importance Level: HIGH
Primary Actor: Review Panel	Use Case Type: Essential	

Stakeholders and Interests: Authors - get accepted or denied by review panel
Brief Description: Review papers submitted by authors assigned by track chair
Trigger: Track chair assigns papers to review panels Type: Internal
Relationships: Association: Include: Assign Paper to review panel Extend: Manage Conference Information

Generalization:
Normal Flow of Events: 1. Authors submit papers 2. Track chair assigns papers to review panel 3. Reviewers accept or deny papers 4. 5.
Subflows:
Alternate/exceptional Flows: No papers are submitted to conference

Reserve Room

Use Case Name: Reserve Room	ID: 5	Importance Level: HIGH
Primary Actor: Conference Board	Use Case Type: Essential	

Stakeholders and Interests: Conference Board - must schedule rooms for the conference presentations Authors - need a place to present their papers
Brief Description: Conference board schedules rooms to use for the conference
Trigger: Conference date is scheduled and authors papers are submitted Type: Internal
Relationships: Association: Include: Extend: Manage conference Information Generalization:
Normal Flow of Events: 1. Papers are accepted for conference 2. Authors register and make payments 3. Conference board schedules rooms to use for conference 4. 5.
Subflows:
Alternate/exceptional Flows:

Generate Reports/Tags

Use Case Name: Generate Reports / Tags	ID: 6	Importance Level: HIGH
Primary Actor: Conference Board	Use Case Type: Detail, Essential	

Stakeholders and Interests: Conference Board - able to see current registration status and interim reports
Brief Description: Generates reports at any point in the conference for detailed information
Trigger: Conference Board requests detailed information about conference Type: Internal
Relationships: Association: Include: Extend: Manage Conference Information Generalization:
Normal Flow of Events: 1. Conference Board accepts papers 2. Authors register for conference 3. Authors make payments 4. Conference Board generates reports for conference 5.
Subflows:
Alternate/exceptional Flows:

Communicate Decision to Authors

Use Case Name: Inform Authors	ID: 7	Importance Level: HIGH
Primary Actor: Conference Board	Use Case Type: Detail	

Stakeholders and Interests: Conference Board - must inform authors of acceptance or denial Authors - need to know if their paper was accepted or denied
Brief Description: Informs authors if their papers were accepted or denied
Trigger: Review panel accepts or denies paper Type: Internal
Relationships: Association: Include:

Extend: Manage Conference Information Generalization:
Normal Flow of Events: 1. Author submits paper 2. Review panel accepts or denies paper 3. Conference Board informs authors of decision 4. 5.
Subflows:
Alternate/exceptional Flows: Author does not submit paper

Manage Feedback

Use Case Name: Manage Feedback	ID: 8	Importance Level: HIGH
Primary Actor: Conference Board	Use Case Type: Essential	

Stakeholders and Interests: Conference Board - conference evaluation, presenter evaluation Authors - submit feedback on conference and other authors
Brief Description: Manages the conference evaluation forms and presenter evaluation forms
Trigger: User submits a conference evaluation or presenter evaluation form Type: Internal
Relationships: Association: Include: Extend: Manage Conference Information Generalization:
Normal Flow of Events: 1. Authors present papers at conference 2. Users fill out evaluation forms 3. Users submit evaluations forms
Subflows:
Alternate/exceptional Flows:

Register for conference

Use Case Name: Register for	ID: 9	Importance Level: HIGH
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conference		
Primary Actor: Author	Use Case Type: Detail	

Stakeholders and Interests: Author-needs to register for the conference
Brief Description: This use-case describes how authors can register for the conference
Trigger: Author try's to register for conference Type: External
Relationships: Association: Include: Payment Arrangements, Review Papers Extend: Submit Paper, Resubmit Paper, Manage Conference Information Generalization:
Normal Flow of Events: 1. Author submits a paper 2. Paper gets reviewed by the review panel 3. Author is informed if their paper was accepted 4. Author resubmits paper 5. Author Registers for conference
Subflows:
Alternate/exceptional Flows: User registers to attend conference

Submit Paper

Use Case Name: Submit Paper	ID: 10	Importance Level: HIGH
Primary Actor: Author	Use Case Type: Detail	

Stakeholders and Interests: Author - wants to submit paper to conference Conference Board - needs authors to submit papers to incur revenue
Brief Description: Author submits a paper to the conference for review
Trigger: Author submits paper Type: External
Relationships: Association: Include: Extend: Registration Generalization:
Normal Flow of Events: 1. Author writes paper

2. Author submits paper to conference 3. Review panel accepts or denies paper 4. Author resubmits accepted paper 5. Author registers and makes payment
Subflows:
Alternate/exceptional Flows: Authors paper is denied

Make Payment

Use Case Name: Make Payment	ID: 11	Importance Level: HIGH
Primary Actor: Author	Use Case Type: Essential, Detail	

Stakeholders and Interests: Author - needs to pay a fee to enter conference
Brief Description: This use case describes how the author will make their payments
Trigger: Authors paper is accepted by review panel Type: Internal
Relationships: Association: Include: Registrations Extend: Generalization:
Normal Flow of Events: 1. Author's paper is accepted by review panel 2. Author registers for conference 3. Author makes payment 4. 5.
Subflows:
Alternate/exceptional Flows:

Structure Modeling

CRC Card - Author

Front:

Class Name: Author	ID:1	Type: Concrete, Domain
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Description: An individual that has submitted a paper to be reviewed.	Associated Use Cases:1
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Responsibilities <u>Register</u> <u>Submit Paper</u>	Collaborators
	<u>Registration</u>

Back:

Attributes:

First Name:	Sate:
Middle Initial:	Country:
Last Name:	Zip Code:
Street Address:	
City:	

Relationships:

Generalization (a-kind-of): <u>Person</u>
Aggregation (has-parts): <u>Paper</u>
Other Associations: <u>Submit paper, Make Payment</u>

CRC Card - Paper

Front:

Class Name: Paper	ID: 2	Type: Concrete, Domain
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Description: A research report submitted by the author	Associated Use Cases:1
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Responsibilities <u>Reviewed</u>	Collaborators

Back:

Attributes:

PaperID:	
Title:	
Subject:	
AuthorID:	

Relationships:

Generalization (a-kind-of): Aggregation (has-parts): Other Associations: <u>Author</u>
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CRC Card – Track

Front:

Class Name: Track	ID:3	Type: Concrete, Domain
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Description: Subject area of submitted paper	Associated Use Cases:1
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Responsibilities	Collaborators
	Review

Back:

Attributes:

TrackID:	
PaperID:	

Relationships:

Generalization (a-kind-of):
Aggregation (has-parts):
Other Associations: Track Assignment, Paper

CRC Card - Reviewers

Front:

Class Name: Reviewers	ID: 4	Type: Concrete, Domain
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Description: A member of the review panel	Associated Use Cases:1
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Responsibilities <u>Review Paper</u>	Collaborators
	<u>Decision of Acceptance</u>

Back:

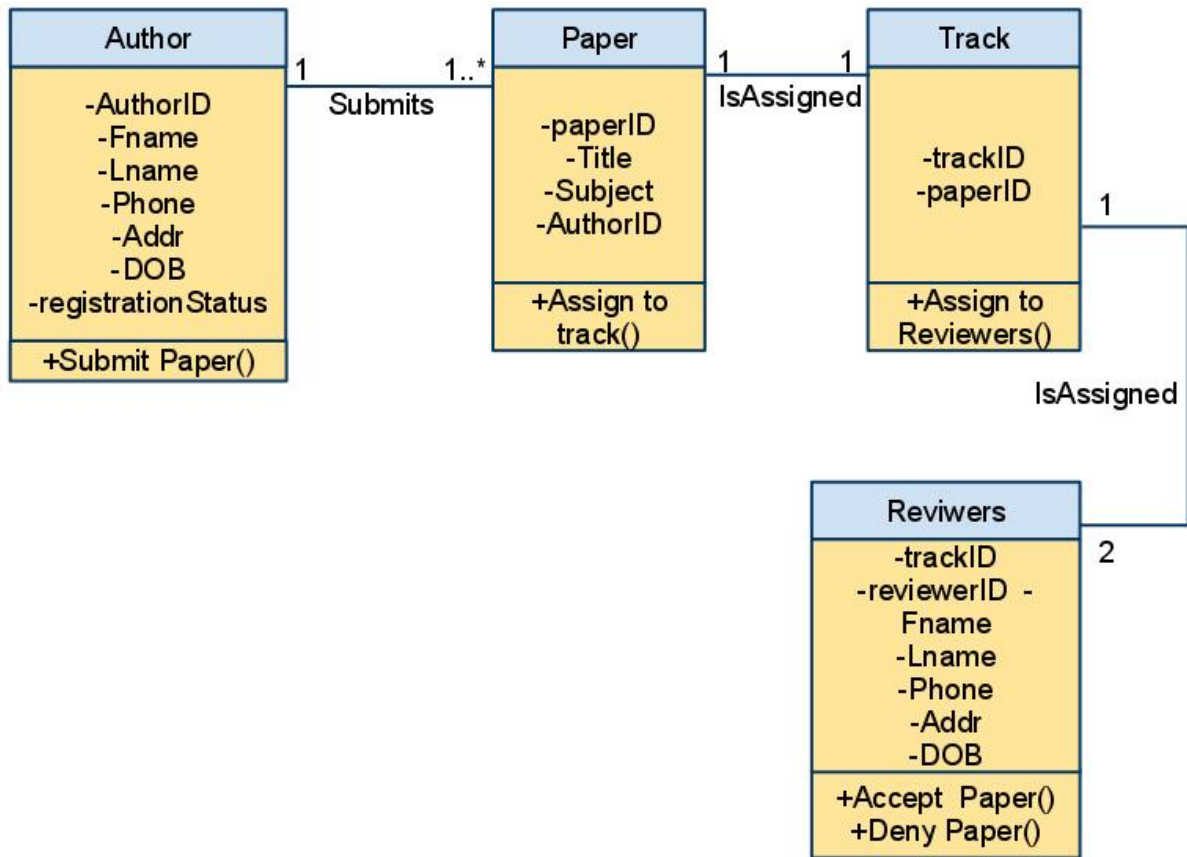
Attributes:

First Name:	Sate:
Middle Initial:	Country:
Last Name:	Zip Code:
Street Address:	ReviwerID:
City:	

Relationships:

Generalization (a-kind-of): Person
Aggregation (has-parts):
Other Associations: Review Paper

Simplified Class Diagram



Object Persistence Format

