

Vintage Sports Car Association of Virginia System Proposal



Joanna Senseng

Systems Analysis and Design
Info361-001

Tables of Contents:

Description of the Project	2
Executive Summary	2
VSCAV Case Scenario	3-4
VSCAV System Request.....	5
Team Operating Principles.....	6-20
Team Charter.....	15
Business Case: Feasibility Analysis	22-25
Use-Case Description	26-32
Use-Case Diagram	33
Class Diagram Descriptions	34
Class Diagram	35
Sequence Diagram Descriptions	36
Sequence Diagram	37
State Machine Diagram Descriptions	38
State Machine Diagram	39
Windows Navigation Diagram	40
User Interface Prototype Screens	41-43
Usability Test Report	44
GANTT Chart.....	45-46

Brief Description of the Project:

The Vintage Sports Car Association is in need of an information system update due to the current system being outdated as it is a manual and paper file system, which is proving inefficiency to the organization. To successfully do so, my team and I have attentively analyzed the organization of the VSCAV system and familiarized ourselves to the mission of this project. To further ground our proposal, I have provided the diagrams that were done to thoroughly meet our goals for updating the VSCAV's information system.

Executive Summary:

The goal of this computer-based information system update is to assist the organization with their record keeping and spread digital awareness within their community with the hopes that it will attract new members, as well as ease functional usability for current members. To successfully meet the organization's goals, my team and I first evaluated and conducted feasibility reports. After finalizing the scope of this project, I have developed a Use-Case diagram, Class Diagram, Sequence Diagram, State Machine Diagram, and a User Interface Prototype, which have all been included in this proposal. This proposal will satisfy the organization's base need. If VSCAV decides to increase more services available on their organization page, they will be able to easily use our diagrams to split their goals into smaller tasks and work step by step to build such. To implement this proposal, VSCAV will need to appropriately delegate tasks to members based on their strengths and familiarity to each of the sectors of this new computer-based information system.

VSCAV Business Case:

The Ways and Means Committee (WMC) of the Vintage Sports Car Association of Virginia (VSCAV), with Tommy Gearhead leading the effort, drafted a system request that included the purpose for the need to develop an information system for their organization. The primary focus was on growing membership and increasing their club's funds for helping the hobby's mission of educating the public on the significance sports cars have contributed to the advancement of the every-day automobile. By preserving these cars, their legacy would be document in the annals of automotive history.

Gearhead forwarded the system request to Axelrod, who, in turn, meet with the class of systems analysis and design students to create a business case to determine if developing a computer-based information system would be in their best interests based on their organization's mission and goals. The students have been provided a copy of the system requests which outlines features that they envision would be helpful in running their club. The WMC is asking the project teams to perform preliminary feasibility analysis and business case. Specifically, the report needs to include the following:

- A statement of purpose for the project.
- What business value should be expected as a result of implementing the system?
- Scope Statement: a short paragraph defining the functional requirements to be included in this project; Focus on the major organizational needs and functionality listed in the system request as well as those identified from class and your individual group discussions.
- A technical feasibility analysis—focusing on the technical issues/challenges for the project; identify risks and measure of impact on THAT (low, medium, high), and how to address them.
- An economic feasibility study – does it make sense from a business perspective; can they afford it? Include a cost benefit analysis with ROI, NPV, and payback (breakeven) metrics; identify risks and a measure of impact on THAT (low, medium, high), and how to address them.
- An organizational feasibility study – will the organization be able to embrace the new system? Also, identify risks and a measure of impact on THAT (low, medium, high), and how to address them. In addition, consider these issues:
 - Operational
 - Scheduling
 - Legal and Contractual
 - Political
- Any additional comments you deem relevant for this project – special issues/concerns

Assumptions:

1. Prepare cost/benefit analysis for 5 years using a 5% discount interest rate
2. Assume a membership base of 2,500 in year 0
3. Membership dues = \$45/year
4. Assume a local club base of 20 chapters in year 0
5. Base number of meets 5
6. Average meet contribution to VSCAV \$5000
7. Base individual & corporate donations \$15,000
8. Membership growth: year 1 =10% , reduce to 5% each year thereafter
9. Number of local chapters' growth per year 5%
10. Individual and organization donations growth of 10% per year
11. External hosting service (estimate annual equipment resources to support the membership numbers)
12. Hire support services personnel to manage/maintain system (skills: data base/networking & communications)
13. Establish online club store merchandising to increase club revenue \$7,500 with growth of 10% for each year through the 5 year business case.

In addition, your team may make reasonable estimates or assumptions for any information provided in the system request, class discussion, and team brainstorming.

VSCAV System Request:

Project Name: Vintage Sports Car Association of Virginia Information System

Project Sponsor: Tommy Gearhead, VSCAV Executive Committee Member

Business Need: With the growing interest in the vintage sports car hobby, the VSCAV club has been overwhelmed with keeping track of members, event participants, qualified judges, event notifications, and reporting meet vehicle judging results with the ability report to the local member clubs using the current, manual and paper file system. This has hurt the ability of VSCAV to grow its membership. There is a need to develop a computer-based information system to support VSCAV activities that will give the association's membership better service so they can enjoy the benefits of the old car hobby.

Functionality & Scope of Project:

- Create and maintain national membership records
- Provide meet information to local clubs and members
- Maintain a list of judges with their qualifications and seniority status
- Keep track of membership & dues
- Maintain attendance records for meets (participants, vendors, judges)
- Maintain records of event (judging, tours, seminars, etc.) results
- Maintain vendor information
- Advertise the organization via the Web
- Allow members to join via the Web or via regular mail (credit card option)
- Scope does not include developing on-line merchandising (store), 3rd party Payment & Shipping Services at this time

Expected Value

Tangible: Reduce record keeping costs by \$15,000 per annum
Increase membership (local clubs & general membership)
Increase # annual events (state, regional, local chapters)
Increase average show/meet contribution
Increase merchandising revenue
Increase corporate/vendor donations/sponsorships

Intangible:

- Improve information & services provided to local clubs and members
- Improve vendor presence and seminar offerings at meets
- Improve availability of qualified judges through better management of records
- Improve visibility and accessibility of the club to the public

Special Issues or Constraints:

- Determine IT equipment cost (hardware/software/communications)
- Location of operations facilities of the proposed system
- Determine overhead costs of facilities and personnel (salary & benefits)
- Identify and hire someone to maintain database, networking, software
- streamline operational procedures
- streamline show/meet activities and workflow & business processes
- Acquire appropriate licensing for software/hardware/communications
- Broadband communication service requirement
- Intel-based laptops using Windows 7 operating system environment
- Website is hosted by external host
- Very limited information systems development expertise



TOPS

Team Operating Principles

The TOPS Document is designed for you to establish/reestablish norms with your team in terms of how you would like to work together. Taking the time to understand what each person brings to the team is an important part of building a great team. Even if you have been working together previously, this exercise can be valuable when teams are changing or when new team members join the team. Knowing what can create challenges for each of us also helps individuals on the team support one another and minimize the creation of unintentional problems.



Team Operating Principles - TOPS

INDIVIDUAL TEAM MEMBER OVERVIEWS

For each team member, please take 2 -3 minutes to describe your strengths (what you bring to the team, both in terms of functional or specialized knowledge, and in terms of your competencies, such as organizational skills, teamwork skills, writing skills, facilitation skills etc.) Also describe what your hot button(s) are (what gets you upset – this is often related to what team behaviors others do that may upset you, e.g. being late, interrupting others, not pulling your weight etc., how you react when this happens (do you get angry, or withdraw, etc.), and finally, what other team members can do to help you get back to center when your hot buttons are pushed (e.g. give me space, apologize, etc.)

Team Member	Strengths	*Hot Buttons*	Reactions under stress	How you can help me when my hot buttons are pushed
Kay Hassan	Organizing info in a way that makes the most sense	-not being actively engaged and present during meetings. -criticisms that are not constructive	-gets really quiet and disengaged -becomes aggressive if it's a reoccurring issue	Give space
Kalin Khera	Organizing and Writing	-arriving late -doing things last minute	-becomes quiet	Apologize
David Hailey	Time management and meeting deadlines	-not equally contributing	-becomes quiet -might express rage if it builds up	Try not to
Alan Ranke	Analytical, time management, utilizing PowerPoint and Excel	-arriving late	-voice and vocalize opinions	Try not to
Joanna Senseng	Delegating tasks, analytical, organizing	-doing things last minute -not equally contributing	-becomes quiet and disengaged	Give Space

TEAM MISSION STATEMENT

In one sentence, what do you hope to accomplish as a team (don't worry about perfection here, just the main idea)?

To gain experience in management and team building by working together.

TEAM CORE VALUES

What can you agree about the most important values you share in building success as a team? Quickly brainstorm and settle in on the top 3 – 5 values with a concrete example of what that would look like for the team when the team is in alignment with these values and when they are out of alignment. Be as specific and behavioral as possible (e.g.– what would you see happening – if Respect is a value, then listening, reiterating, building on one another's ideas might be examples; interrupting or rolling your eyes might be a counter example;)

Value	Behavioral Example and Counter Example (Please be specific)
Be respectful	Let others verbalize thoughts without working rude comments on degrading one another
Be on time	Show up in group scheduled events and make others aware if conflicts arise. Do not show up late without having previously made the team aware.
Be engaged	Be involved in decision making, discussion, etc. Do not work on homework or projects during group meeting.

TEAM COMMUNICATION NORMS

How do we want to communicate in different situations?

Communication Need	Agreed Mode of Communication	Turn Around Time (if applicable)
General Logistics & Coordination	Group SMS (texts)	Within 1-2 hours - exception for David
Quick Question	Group SMS (texts)	Within 1-2 hours
Urgent Matter	Group SMS (texts)	Within 1-2 hours
Personal Issue/Concern	Group SMS (texts)	Within 1 hour
Project Planning	Email, meetings, Google Docs	This will be determined in detail for each project.

ACCESSIBILITY AND ON-CALL

What hours and days during the week do we want to agree to be generally accessible?

Monday - Friday: any time before 10pm

NORMAL TURNAROUND TIME

What expectations should we have in terms of the frequency of checking e-mail and voicemail during the work week? On weekends and evenings?

Texts: Daily and responds within 1-2 hours

Emails: Check within 1 business day



VCU School of Business

TEAM MEETINGS

How often should we meet as a team- both face to face and virtually?

We plan on meeting face-to-face once a week and be in constant communication via SMS.

ORGANIZING AND GETTING THE WORK DONE: *

WHAT PROCESS STEPS WILL THE TEAM FOLLOW:	PROCESS STEPS:
TO DECIDE ON INITIAL ROLES AND RESPONSIBILITIES TO TACKLE THE WORK? (E.G. PROJECT MANAGER, TASK DIVISION AND/OR TIMEFRAME EXPECTATIONS)	WE WILL ASSESS TEAM STRENGTHS AND SKILLS ACCORDINGLY FOR EACH PROJECT.
TO DEVELOP AND FINALIZE TEAM DELIVERABLES (E.G. INITIAL WORK, INTEGRATION OF WORK, REVIEW AND REFINEMENT OF WORK, DECLARATION OF WORK COMPLETION OF WORK)	REQUIREMENTS LIST WILL BE COMPILED AND AFTER PROJECT ASSESSMENT IS COMPLETED. A CHECKLIST WILL BE CREATED WITH EACH ACTION AND MEMBER RESPONSIBILITIES. ONCE AN ACTION IS COMPLETED, A NOTIFICATION VIA EMAIL/TEST SHOULD BE DISBURSED TO OTHER TEAM MEMBERS FOR REVIEW.
IF A TEAM MEMBER IS NOT CONTRIBUTING AS EXPECTED (LATE DELIVERABLES, LATE OR NOT ATTENDING MEETINGS, DISENGAGED FROM GROUP ETC.)	WE WILL ADDRESS IT WITH THE TEAM MEMBER, AND IF NO IMPROVEMENT CAN BE SEEN OVER TIME, WE WILL CONSOLE WITH THE PROFESSOR.

* NOTE: THESE MAY CHANGE AS YOU GET INTO THE SEMESTER. USE YOUR BEST ESTIMATE OF HOW YOU WANT TO ORGANIZE THE PROCESS. I HIGHLY RECOMMEND YOUR TEAM REVIEW THIS AFTER TURNING IN THE FIRST DELIVERABLE, AND REFINE IT AS NEEDED.


CONFLICT: NORMS AND CONFLICT RESOLUTION PROCESSES
Team Conflict Norms When We Disagree About Ideas and Strategies, Roles and Responsibilities, and Processes TO Getting the Work Done

Acceptable Behavior (in face to face, phone and email situations)	Not Acceptable Behavior (in face to face, phone and email situations)
Showing mutual respect	Not treating others with respect, yelling, treating ideas as if they're stupid
Being on time to meetings	Not letting other team members know that you're going to be late or not show up at all.
Responding to messages in a timely manner	Responding within two hours, except for when you're at work and for extensive project planning activities.

PROCEDURE FOR RESOLVING DISAGREEMENT ON TOPS OR CONFLICT NORMS

It is critical to establish some ground rules for when a member (or members) of the team feel that the TOPS team agreement, including conflict norms, is compromised. (e.g. first have a direct conversation with the person – both people are accountable for resolving the disagreement.... Next, if that doesn't work, bring it to the team & have each member of the team take accountability for ensuring it is resolved. Next... Etc.)

Please describe the escalation processes you would like to follow and who will be held accountable for each step:

Process Steps to Be Followed:	Who is Accountable for Each Step
Communicate to the abusive member that their behavior is unacceptable and needs to improve	The group as whole will come to an acceptable conclusion
Have one more intervention with the abusive member	
Go to the professor and discuss the issue	The group as whole will come to an acceptable conclusion



HOW WILL WE KNOW WHEN THE DISAGREEMENT IS RESOLVED?

When the group comes to a conclusion about the conflict.

COMMITMENT TO CONTINUOUS IMPROVEMENT

How will the team ensure that the TOPS process will be sustained as a living document?

What will the team do to ensure that the commitments established here are reviewed and revised as needed? (When will you review and refine it)

As changes come to the surface the group shall update the charter accordingly and will confirm consensus by initialing the changes.



CONTACT INFORMATION: PLEASE SIGN THIS DOCUMENT BELOW TO INDICATE THAT EACH TEAM MEMBER HAS REVIEWED IT AND HAS AGREED TO ABIDE BY THE PRINCIPLES ESTABLISHED IN THE TOPS DOCUMENT:

Name	Email	Phone# (s) – Work/Home or Cell	Signature
Kay Hassan	hassanj3@vcu.edu	703-829-7467	
Kalin Khera	kheraks@vcu.edu	571-359-8690	
David Hailey	haileydb@vcu.edu	980-622-5252	
Michael Rancka	ranckama@vcu.edu	804-683-7463	
Joanna Senseng	sensengjpl@vcu.edu	571-287-9026	

Congratulations! You have just taken the time to do what 90% of most teams do not do! Please reference this document at regular intervals during the semester to review it, reflect on how you are doing as a team, and refine it if needed. This should be a living document!



CONTACT INFORMATION: PLEASE SIGN THIS DOCUMENT BELOW TO INDICATE THAT EACH TEAM MEMBER HAS REVIEWED IT AND HAS AGREED TO ABIDE BY THE PRINCIPLES ESTABLISHED IN THE TOPS DOCUMENT:

Name	Email	Phone# (s) – Work/Home or Cell	Signature
Kay Hassan	hassanj3@vcu.edu	703-829-7467	
Kalin Khera	kheraks@vcu.edu	571-359-8690	
David Hailey	haileydb@vcu.edu	980-622-5252	<i>D. Hailey</i>
Michael Rancka	ranckama@vcu.edu	804-683-7463	
Joanna Senseng	sensengjpl@vcu.edu	571-287-9026	

Congratulations! You have just taken the time to do what 90% of most teams do not do! Please reference this document at regular intervals during the semester to review it, reflect on how you are doing as a team, and refine it if needed. This should be a living document!

POWER OF 5 TEAM CHARTER

Mission Statement

Our goal is to gain experience in project management and team building by working together. The charter presented is a set of guidelines that each member pledges to agree upon.

Meetings

- Members should meet weekly on Fridays between 12-2PM at Snead Hall, unless otherwise agreed upon by all members
- All members agree to be prepared for all meetings
- Any assignments they are delegated must be presented on the expected due date
- For all meetings, member must be punctual. A message to the group must be sent of expected arrival if tardiness is expected to surpass more than 10 minutes

Communication

- Communication is vital for a successful team, thus members are expected to stay in contact with each other via phone, group messaging, email, or in person
- Communication platforms must be checked regularly every day
- Any message must be responded to within a one to two hour period with the exception that it may interfere with work schedules
- If a team member is unsure of an assignment, it is their responsibility to speak up and ask questions
- Constructive criticism and conflicts are welcome, belittling and arguments are not
- It is the group's responsibility to handle disputes

Absences and Participation

- For any absences, the team must be notified as soon as possible, otherwise, you are expected to be present
- If a member of the team has had over three unexcused absences, team members have the right to collectively discuss the matter further with the course professor
- Members must participate during meetings, no suggestion or question is stupid

Assignments

- Each member will be assigned a certain part of the project and are accountable for their portion
- A document will be created to track project tasks and the member(s) assigned to each activity
- Tasks will have statuses of either: “**Not Started**”, “**In Progress**”, or “**Completed**”
- Once a “**Complete**” status for an item is achieved, a notification via email and or text must be sent to notify the rest of the group
- Any suggested changes or disagreements of quality of work must be addressed immediately
- Each member will review completed tasks and will initial on the project task list to confirm their approval
- Assignments are not to be left to the last minute

Corrective Action

- If a member excessively abuses these rules, other members must do the following in this order:
 - a. Communicate to the abusive member that their behavior is unacceptable and needs to improve
 - b. Have one or more intervention with the abusive member
 - c. Team members will collectively discuss the matter further with the course professor

Signatures

X 
Kay Hassan

X 
Kalin Kher

X 
Michael Alan Rancka Jr.

X
David Hailey

X 
Joanna Senseng

Signatures



Kay Hassan



Kalin Khera



Michael Alan Rancka Jr.



DH Hailey

David Hailey



Joanna Senseng

Team Biography

Kay Hassan

Kay Hassan is a newly minted senior at Virginia Commonwealth University after her recent transfer from NOVA in spring of 2016. She is a major in Information Systems and strives to make a career in Data Analytics after graduating from the program. In the past she has worked as a contractor for the FDA, NASA, and most recently was a Fulfillment Manager for Identity Access Management company Exostar, where her interest in analysis and data manipulation first spawned.

Kay is passionate in learning about new activities, topics, and groups that she believes will help her grow into a well-rounded individual. In her free time, she has enjoyed discovering Richmond by exploring nearby restaurants, museums, breweries, and events hosted by the community.

Kalin Khera

My name is Khera. I was born in Boston, Massachusetts. I am currently a junior year at VCU. My major is Information Systems. My hobbies are watching TV shows, hanging out with friends, and driving. When I graduate college, I plan to work full time in technology field in Northern Virginia. I might consider applying for Master's Program.

Joanna Senseng

My name is Joanna Senseng, and I am a student studying Information Systems. I currently work part time as a Lead IT Analysis at VCU's IT Support Center. My goal after this program is to start my studies in Artificial Intelligence with the hopes of obtaining a career in Software Development. In my free time, I like to spend time with friends and relieve stress by doing physical activities or baking.

Alan Rancka

My name is Alan, I'm graduating this semester with a dual degree in Accounting and Business Management with 150 credits, so I can sit for the CPA exam. I am married and a father of two girls, age seven and eight. I actually started my college adventure when my youngest was six weeks old. So yes, this is my seventh year in college. It's difficult to work full-time, take care of two girls eleven months apart (aka "daddy day care") under the age of one, four days a week and take classes. At the beginning I could only take two classes a semester.

Before my college adventure I was a general manager in restaurants for about 20 years. Everything from fine dining, like Havana '59 to Arby's. I was also on the developing team for Ukrop's for developing the chef case concept along with Ellwood Thompson's. As I got older and had a family, I realized I realized I really don't like working on holidays and weekends. So that's when I decided to go back to college.

David Hailey

My name is David Hailey and I will be graduating this semester with my Bachelors in Business Administration, hopefully. I have three classes this semester and I work as a manager at Q Barbeque Hull Street. I have been in college for six years since I didn't go full time in the beginning. It has been a rough journey working full time and going to school full time, but I have managed it so far. When I graduate I would like to work for and eventually open a micro-brewery. I would like to do this back in Charlotte, NC since that is where I moved here from.

Project Scope

The Vintage Sports Car Association of Virginia (VSCAV) is a statewide association that hosts meetings to preserve and educate others on vintage vehicles. They also have car competitions along with allowing people to sell parts and accessories. It is the hope of VSCAV to be able to provide information electronically and reach a widespread audience with its mission and vision.

The VSCAV is looking for a way to update their information systems to increase awareness of their organization and events to the public and improving readability of records within its internal members. They also want to streamline registration activities by providing online membership applications, enabling online payments using a secured third-party service for fee collections, and develop a website and database of club activities.

The new system will log and track certified judges, sales of club-oriented merchandise, car show registrations, entrance fees for attendees, special events, and tracking of donations to the organization. The Power of Five team will help by creating an information system that will streamline their activities by setting up a web presence and system to organize electronically.

Technical Feasibility: (Medium Risk)

With the VSCAV club still utilizing the paper filing system, it can be foreseen that keeping a record of its members and events can become problematic. Often times, most people correlate professionalism and credibility with the technology being used by the organization and how it presents itself to the public via events or its website. With the current system of VSCAV club and its lack of application and expertise in technology, so much information that can be used to sway new prospective members is not being presented in a convincing manner. With the use of more technology in the organization, one can look back at the organization's history and events and maintain a better record of its members and their dues, along with the details of the events held, such as the judges with their qualifications and seniority statuses and the event winners.

To combat this issue and become more technologically savvy, the organization will need to put together a small committee consisting of at the most 3 people, in which the responsibility of maintaining and updating the website and other social media platforms, keeping members up to date with bi-weekly digital newsletter containing the upcoming important dates for events, and entering in important details of the organization in a database for record keeping can be split up amongst the team. All of these can be done with using Intel laptops running on a Windows 7 operating system and Amazon Web Services, which can host the website and store the organization's information on their database. Amazon Web Services can also be used to track Website traffic and check the organization's metrics to further evaluate how the organization is doing with being accessible to the public.

Economic Feasibility: (Low Risk)

The proposed information system model for Vintage Sports Cars Association of Virginia (VSCAV), they will now be able to grow their awareness by increasing the memberships by ten percent the first year and the club's funds in the first year by \$60,000 respectively. The association's implementation will see an initial cost of \$664,500 in development and operating costs. VSCAV's investment is projected to have a ROI of 165.23% with a NPV of \$546,319 calculated at a five percent discount.

*Please see attached spreadsheet for details.

Tangible costs and benefits:

165.23 ROI over a 5-year period.

Total benefits after 5 years equal \$546,319 (adjusted for present value).

Reduce record keeping by \$15,000 annually

Increases in merchandise revenue

Increase corporate/vendor donations/sponsorships

Intangible costs and benefits:

Increased membership and chapters

Increased vendor presence and seminar offerings

Increased brand name and goodwill

Organizational Feasibility: (Medium Risk)

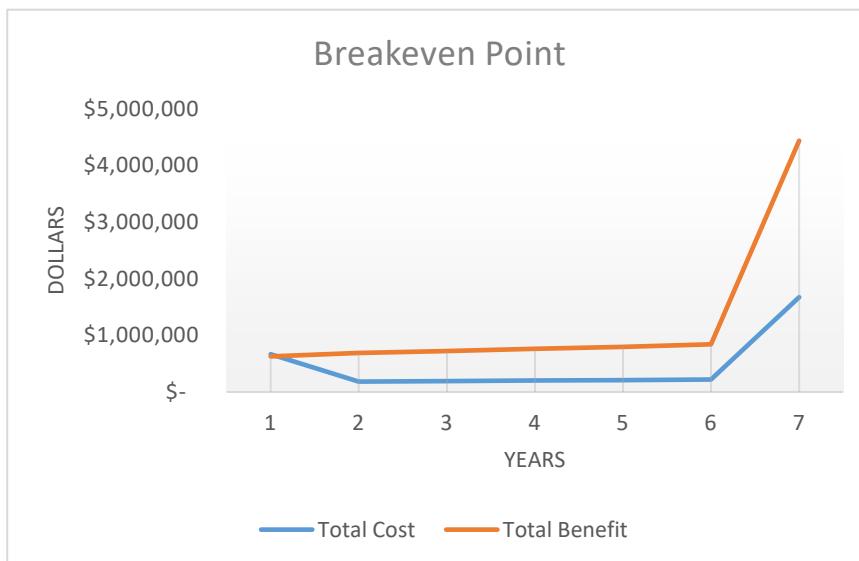
A review of organizational members' attitudes toward upcoming modifications revealed a general apprehension and resistance to change. Some employees lack basic understanding of computer skills and Microsoft Office product tools. This poses a big risk as the new service will require gathering and input of data into spreadsheet and access database. We plan to eradicate concerns by providing regularly scheduled training sessions prior to the formal release. The most beneficial way for employees to learn and experience the new system is by formally conducted training sessions. Training sessions will be simplified and can be completed within one business week.

After the system is upgraded, there may be some small changes in the system, but it will unfold gradually in phases. The system is scheduled to perform whatever is necessary to make changes in the system. In order for employees to avoid issues from changes to the new system, we will purchase Amazon Web Service for the external hosting service. The benefits of using Amazon Web Server are system maintenance and system error checking. The new system would require maintenance to be performed every once in a while to keep the system up and running smoothly. If any problems arise, employees will not be required to resolve any of the technical issues they may face and will receive support and will be handled quickly by Amazon Web Server Services.

Vintage Sports Cars Association of Virginia
Cost/Benefit Analysis

	Year 0 (\$)	Year 1 (\$)	Year 2 (\$)	Year 3 (%)	Year 4 (%)	Year 5 (%)	Total (\$)
Benefits							
Reduce record keeping by \$ every year	-	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 75,000
Membership Dues	112,500	123,750	129,938	136,434	143,256	150,419	796,297
Merchandise Growth	-	7,500	8,250	9,075	9,983	10,981	45,788
Increase in Local Base Chapters	500,000	525000	551,250	578,813	607,753	638,141	3,400,956
Individual and Organizational Donations	15,000	16,500	18,150	19,965	21,962	24,158	115,734
Total Benefits	\$ 627,500	\$ 687,750	\$ 722,588	\$ 759,287	\$ 797,953	\$ 838,698	\$ 4,433,776
Development Costs							
Requirements Workflow	\$ 22,000	-	-	-	-	-	\$ 18,000
Analysis Workflow	27,000	-	-	-	-	-	22,000
Design Workflow	35,000	-	-	-	-	-	33,000
Implementation Workflow	35,000	-	-	-	-	-	12,000
Test Workflow	8,500	-	-	-	-	-	1,500
Storage/Accessories	65,000	-	-	-	-	-	1,200
Hardware	98,000	-	-	-	-	-	8,000
Software	105,000	-	-	-	-	-	21,500
Initial Training	15,000						
Consulting	125,000	-	-	-	-	-	50,000
Total Development Costs	\$ 535,500	0	0	0	0	0	\$ 167,200
Operational Costs							
Software Upgrades	-	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 10,000
Hardware Updates	-	1,400	1,400	1,400	1,400	1,400	7,000
Maintenace	-		500	500	500	500	2,000
Software	-						
IS Support Staff	120,000	174,000	182,700	191,835	201,427	211,498	1,081,460
User Trainning	-	500	500	500	500	500	2,500
Intel-based laptops	9,000	450	450	450	450	900	11,700
Software Licensing	-	600	600	600	600	600	3,000

Broadband Communication	-	1,500	1,500	1,500	1,500	1,500	7,500
External Host	-	6,000	6,000	6,000	6,000	6,000	30,000
Total Operating Cost	\$ 129,000	\$ 183,050	\$ 191,750	\$ 200,885	\$ 210,477	\$ 220,998	\$ 1,136,160
Total Cost	\$ 664,500	\$ 183,050	\$ 191,750	\$ 200,885	\$ 210,477	\$ 220,998	\$ 1,671,660
Net Benefits	\$ (37,000)	\$ 504,700	\$ 530,838	\$ 558,402	\$ 587,476	\$ 617,700	\$ 2,762,116
Return on Investment							165.23%
NPV of Net Benefits							\$546,319



Use Case Diagram and Descriptions

Case 1

Use Case Name: Email Invitations

Primary Actor: Management

Additional Stakeholders:

Management

Members

Non-member

Brief Description: This use case describes how member and non-members are invited to meets/shows.

Normal Flow of Events:

1. Management creates invitation
2. All members selected to receive invitation
3. Management includes emails for non-members that have expressed interest in shows/meets
4. Invitations are sent electronically

Case 2

Use Case Name: Create Membership Records

Primary Actor: Management

Stakeholders

Management

Non-member

Brief Description: This use case describes how to create and maintain the membership records.

Normal Flow of Events:

1. Memberships request received from a non-member
2. Membership account created
3. New member ID is generated

Case 3

Use Case Name: Send Membership Cards

Primary Actor: Management

Additional Stakeholders:

Management

Members

Brief Description: This use case describes how membership cards are sent to members.

Normal Flow of Events:

1. New members complete registration
2. Management receives information of new members
3. Management verifies membership status
4. Verification of receipt of membership dues
5. Management triggers system to send out card to member's registered address

Case 4

Use Case Name: Maintain Membership Records

Primary Actor: Management

Stakeholders

Management

Member

Brief Description: This use case describes how to maintain the membership records.

Normal Flow of Events:

1. Request received from member to update their record
2. Membership account updated

Case 5

Use Case Name: Send Notices to Members Regarding Dues

Primary Actor: Management

Stakeholders and Interests:

Management

Members

Brief Description: This use case describes how to send out notices about upcoming dues.

Normal Flow of Events:

1. Management sends out email to member regarding their dues
2. Member receives email about dues
3. Member pays dues

Case 6

Use Case Name: Collect Dues

Primary Actor: Management

Stakeholders and Interests:

Management

Members

Brief Description: This use case describes how to pay for dues

Normal Flow of Events:

1. Member renews membership
2. Management receives confirmation of payment of dues

Case 7

Use Case Name: Email Invitations

Primary Actor: Management

Additional Stakeholders:

Management

Members

Non-member

Brief Description: This use case describes how member and non-members are invited to meets/shows.

Normal Flow of Events:

1. Management creates invitation
2. All members selected to receive invitation
3. Management includes emails for non-members that have expressed interest in shows/meets
4. Invitations are sent electronically

Case 8

Use Case Name: Send Announcements

Primary Actor: Management

Additional Stakeholders:

Management

Members

Non-members

Brief Description: This use case describes how announcements are sent to members and non-members.

Normal Flow of Events:

1. Management creates announcement
2. Management selects members that will receive invite

3. Announcements are sent electronically

Case 9

Use Case Name: Maintain Attendance Records

Primary Actor: Management

Additional Stakeholders:

None

Brief Description: This use case describes how attendance of meets/shows is recorded.

Normal Flow of Events:

1. Management compiles list of meeting/show attendants
2. List is dated and saved into system

Case 10

Use Case Name: Track Meet>Show Results

Primary Actor: Management

Additional Stakeholders:

Judges

Members

Brief Description: This use case describes how meet and show results are recorded.

Normal Flow of Events:

1. Management enters summary of meet/show results
2. Registered attendants are emailed show/meet summary

Case 11

Use Case Name: Provide overall meet information to local chapters.

Primary Actor: Management

Stakeholders:

Management

Members

Brief Description: This use case describes how the information of the meets will be distributed to the members.

Normal Flow of Events:

1. Management gets all the results of the meets
2. Management sends out the results to the members

Case 12

Use Case Name: Maintain Inventory and Transaction Purchases

Primary Actor: Management

Additional Stakeholders:

Management

Brief Description: This use case describes how Management maintains inventory levels and transaction purchases.

Normal Flow of Events:

1. Management goes to information system
2. Reviews merchandise transaction history
3. Merchandise information and counts updated

Case 13

Use Case Name: Maintain Lists of Judges and their Information

Primary Actor: Management

Stakeholders and Interests:

Management

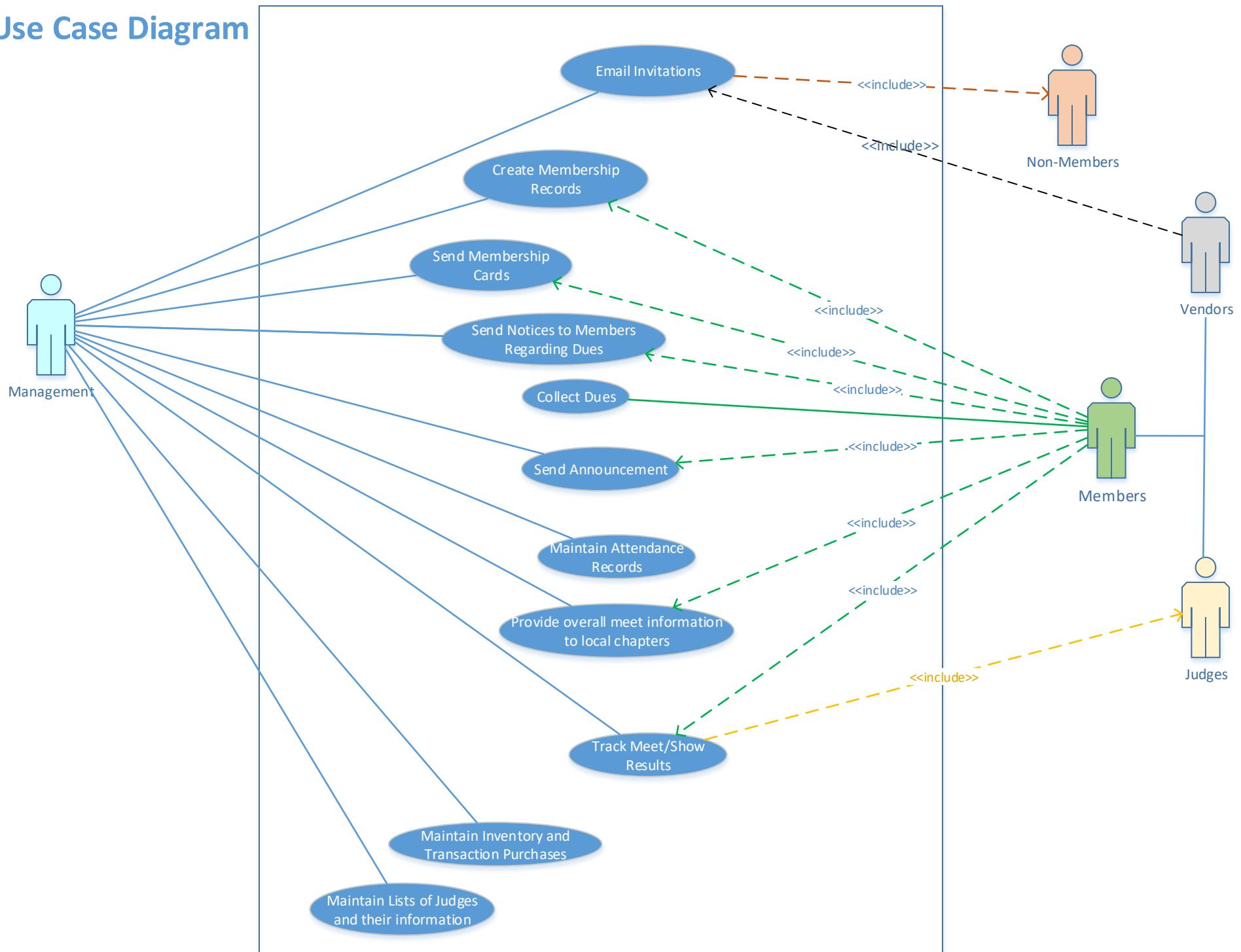
Members

Brief Description: This use case describes how to develop and maintain judges

Normal Flow of Events:

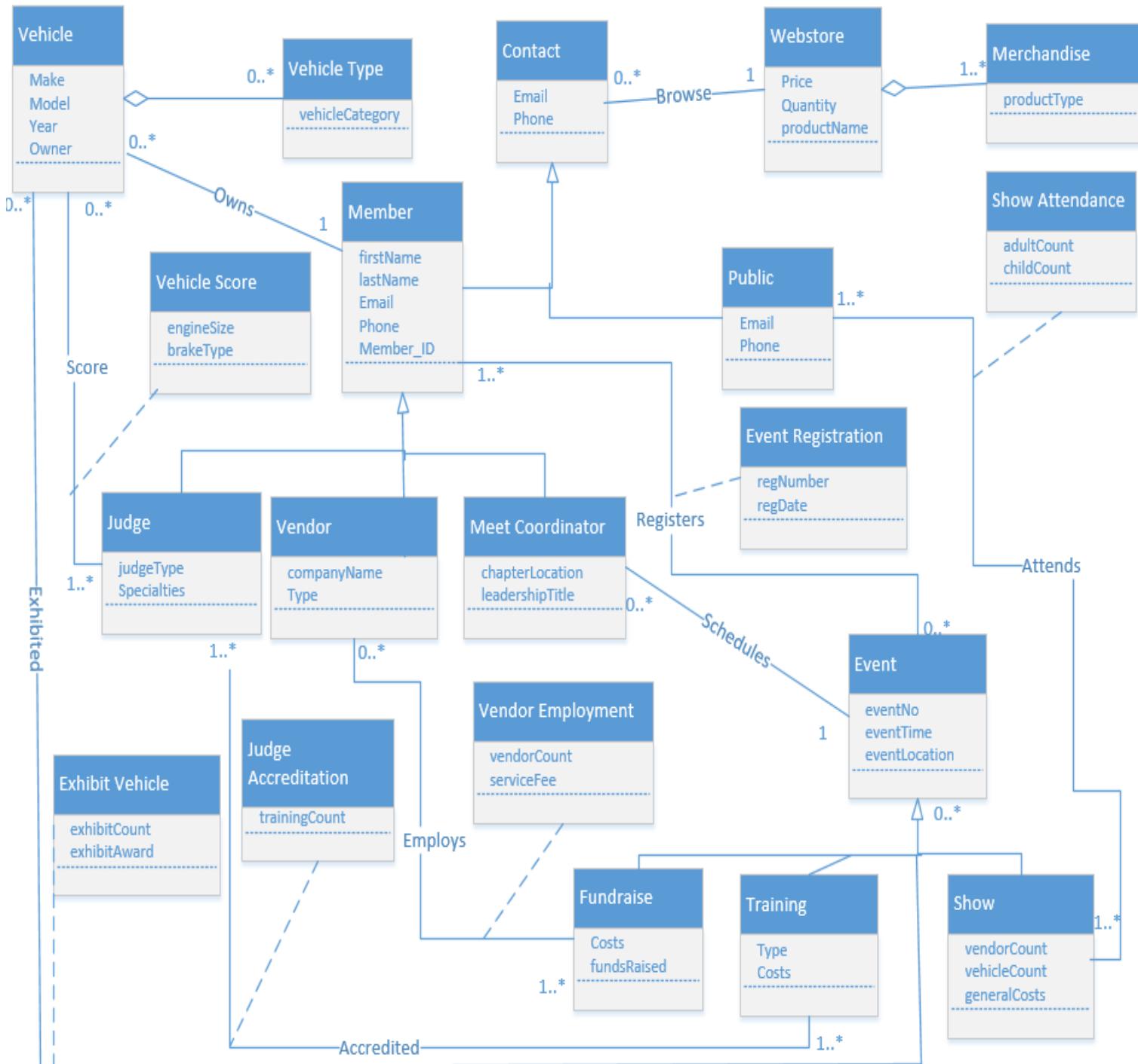
1. Member signs up to be a judge
2. Management updates membership status to judge

Use Case Diagram



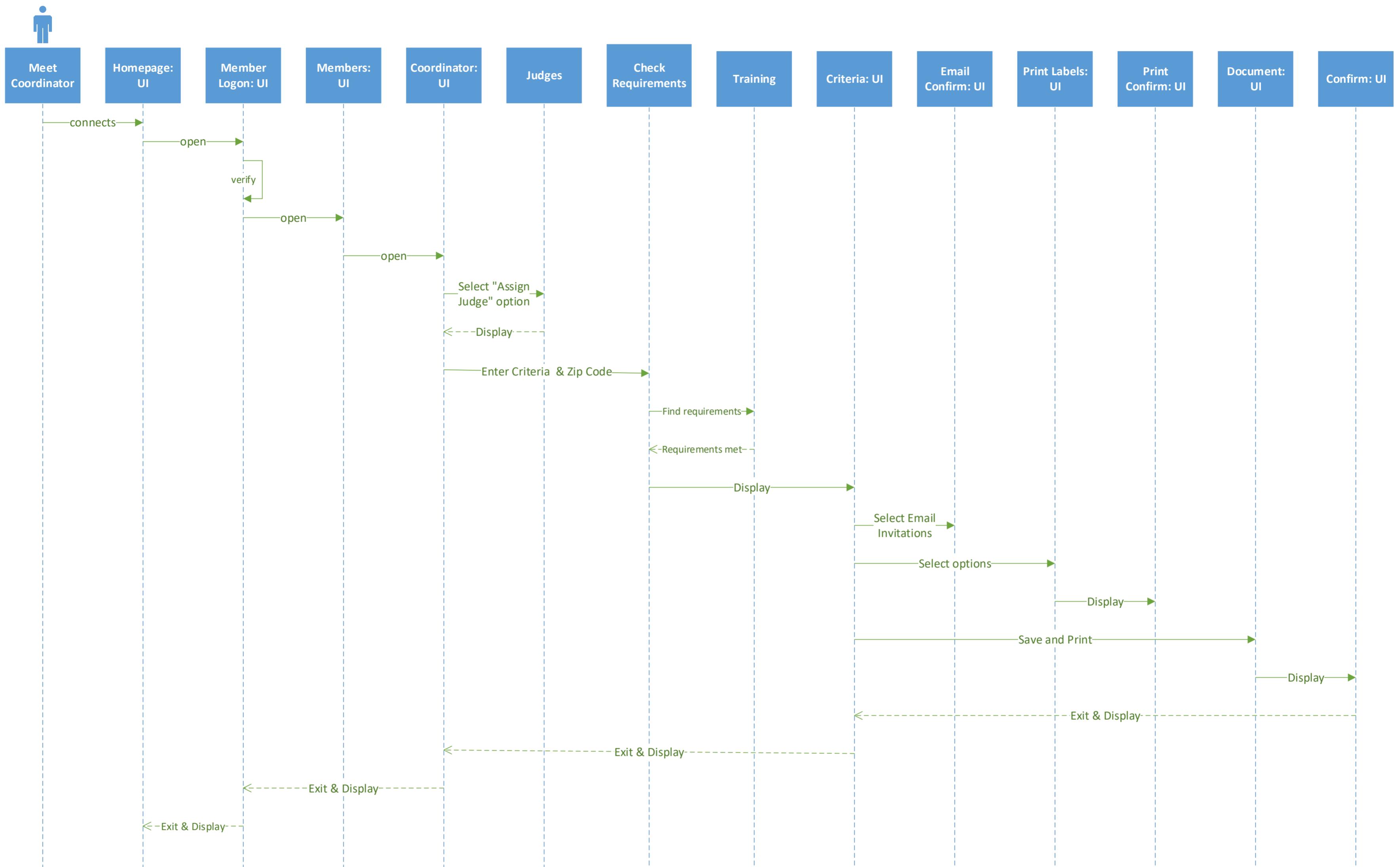
Class Descriptions

1. **Contact (Superclass):** Person that participates in any of the association event types
2. **Public (Contact):** Contact type that is not registered paying member of the association that can only attend an event type categorized as a show.
3. **Member (Contact):** Contact type that is registered paying member of the association that can attend all event types.
4. **Vendor (Member):** A member that is employed to provide services at fundraising events.
5. **Judge (Member):** A member that is accredited to score vehicles.
6. **Meet Coordinator (Member):** A member that initiates and leads an event's schedule and manages overall activities for an event.
7. **Event (Superclass):** Association occasions that can be attended by all contact types.
8. **Training (Event):** Event type that is attended specifically by judges.
9. **Show (Event):** Event type that can be attended by all contact types.
10. **Fundraise (Event):** Event type where vendors are employed to provide service for fundraising activities.
11. **Vehicle:** Owned by members and are scored by judges based on its attributes.
12. **Vehicle Type (Aggregation):** Outline the different categories of vehicles.
13. **Vehicle Score:** Details vehicle attributes that are scored by judges.
14. **Exhibit Vehicle:** Details how many times a vehicle has been entered for an event.
15. **Show Attendance:** Counts total public attendance.
16. **Webstore:** Stores web store merchandise details.
17. **Merchandise (Aggregation):** Outlines merchandise categorizations.
18. **Event Registration:** Outlines member registration details.
19. **Judge Training:** Provide a count of training event and type each judge has participated.
20. **Vendor Employment:** Provides a count of vendors employed at a fundraising event and fees charged by each vendor for the event.



SEQUENCE DIAGRAM DESCRIPTIONS

1. **Meet Coordinator:** A member that determines criteria for events and assigns corresponding judges.
2. **Homepage (UI):** Main web page of the VSCAV association.
3. **Member Login (UI):** Restricted portion of the Vintage Sports Car Association of Virginia homepage for members only. Interface that verifies VSCAV member username and access code.
4. **Members (UI):** A member restricted page with a menu screen that displays a list box of menu options. After system verifies username and access code, Coordinator is granted access to members screen.
5. **Coordinator (UI):** A webpage that is accessible via the “Assigned Judge” option. This link is available to members assigned with the coordinator role.
6. **Judge (Class):** Judge database returns the available judges to the Coordinator’s screen.
7. **Check Requirements:** Function that checks and matches judges within database with those set in the coordinator interface.
8. **Training (Class):** The training database cross references the judges with their training experiences and returns the qualified judges to the coordinator screen.
9. **Criteria (UI):** Displays a list of judge criteria that can be selected by a coordinator and qualified judges meeting the selection criteria.
10. **Email Confirmation (UI):** A webpage that displays a confirmation of the request to send emails to the list of judges.
11. **Print Labels (UI):** A screen that allows the coordinator to print the labels for mailing invitations to a local printer.
12. **Print Confirm (UI):** A screen that confirms that printing is complete.
13. **Document (UI):** Displays the option to download the list of judges to local computer and print a hard copy on the local printer.
14. **Confirm (UI):** Confirmation is displayed on the coordinators screen when download and printing is complete.



State Machine Diagram Descriptions:

Initialization: Members who express interest in becoming a judge. The training seminar points and the amount of shows observed begin at 0.

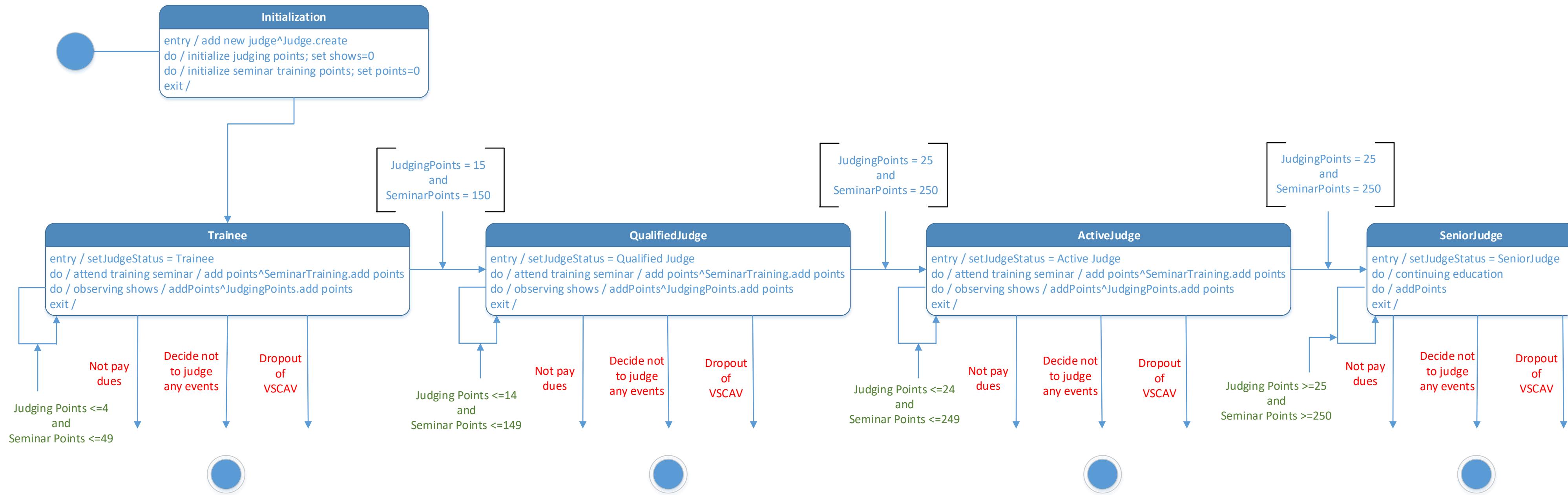
Trainee Judge: First stage of achieving the status as a judge by attending less than 49 training seminars and judging in less than 4 judges in show events. Upon completing requirements of a trainee judge, the member will become a Qualified Judge.

Qualified Judge: A judge who has accumulated 50 training seminar points and judging in at least 5 show events as a Trainee Judge. Upon completing at least 150 training seminars and participating in at least 15 show events, the Qualified Judge becomes an Active Judge.

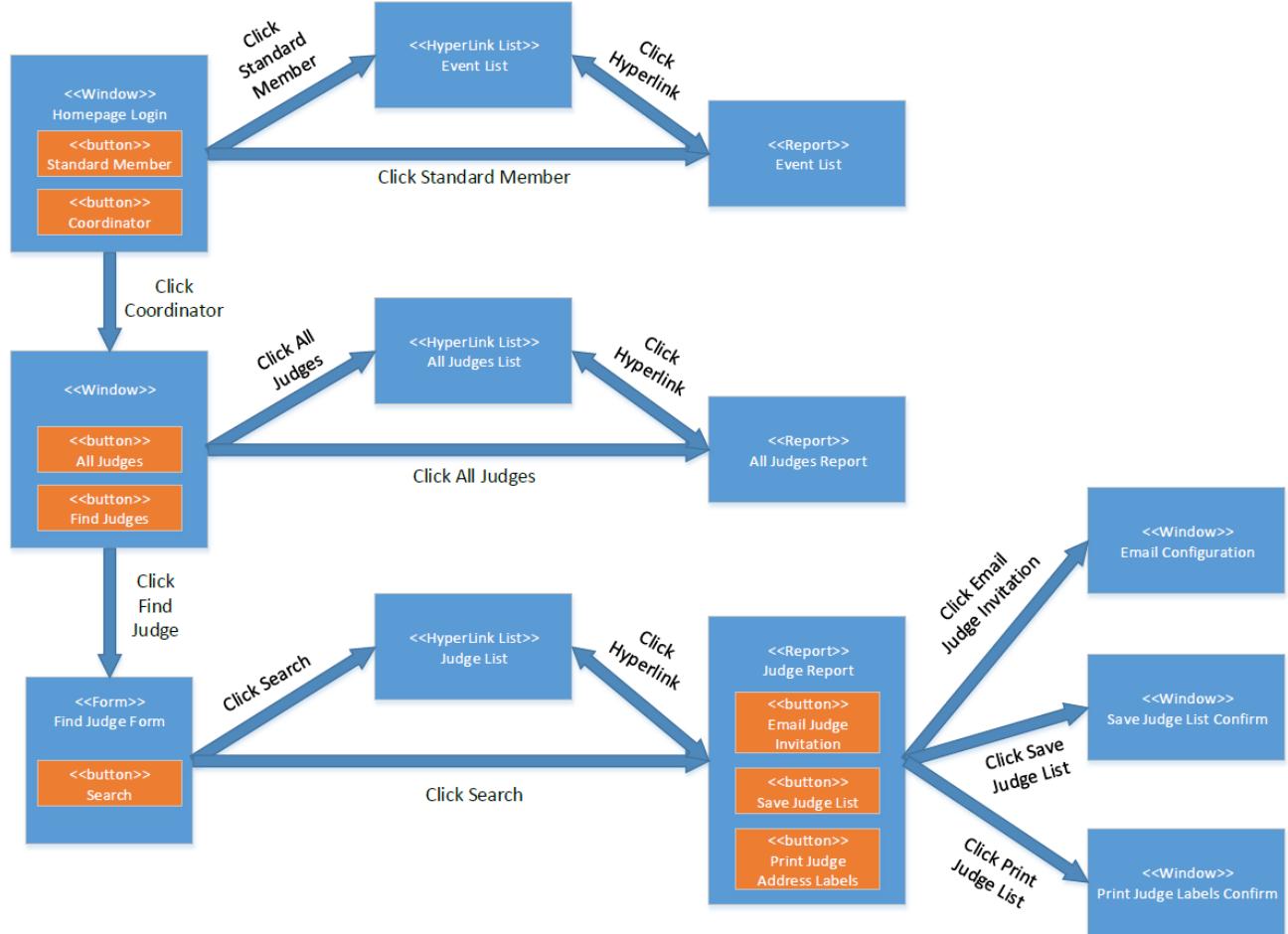
Active Judge: A judge who has accumulated 150 training seminar points and judging in at least 15 show events as a Qualified Judge. Upon completing at least 250 training seminars and participating in at least 25 show events, the Active Judge becomes a Senior Judge.

Senior Judge: A judge who has accumulated 250 training seminar points and judging in at least 25 show events as an Active Judge.

Inactive Judge: Any variation of judge type, who opts to not pay dues, voluntarily decides to not judge shows, or drops out of VSCAV.



Windows Navigation Diagram



User Interface Prototype Screens



Two side-by-side cards. The left card, titled "For Members", lists "Check your Membership Status and Dues" and "Find Upcoming Events", each with a circular arrow icon. The right card, titled "For Coordinators", lists "See List of Eligible Judges", "Print Reports", and "Send Invites", also with circular arrow icons. Both cards have a dark horizontal bar at the bottom containing social media icons for Facebook, Pinterest, and Instagram.

A screenshot of the website's store page. The top navigation bar is identical to the home page. Below it, there are two product items: a white T-shirt with a graphic of a classic car and the number "70" on it, and a yellow poster of a modern sports car. Each item has a price of "\$25.00" and a small image of the product. The background features a large, blurred landscape photograph of a road through a forest.

User Interface Prototype Screens

Sign up

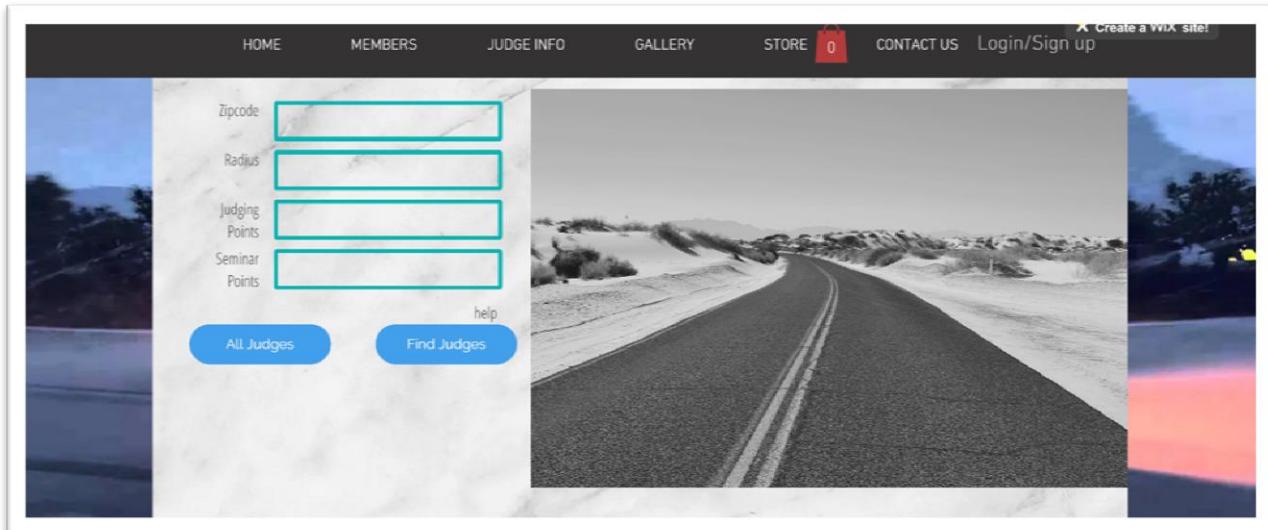
Email

Password

Retype password

GO

I'm already a user, [log in](#)



User Interface Prototype Screens

The top navigation bar includes links for HOME, MEMBERS, JUDGE INFO, GALLERY, STORE (with a red notification badge showing '0'), CONTACT US, and Login/Sign up.

A large central image shows a group of people in business attire gathered around a table, reviewing documents and charts.

To the right of the central image is a profile picture of Ms. Lorelai Gilmore, with her name and email address listed below it. A "Judge Report" button is also present.

On the far left and right edges of the screen are vertical decorative panels showing blurred landscape images.

The top navigation bar is identical to the home page.

The central area features a large portrait of Ms. Lorelai Gilmore smiling.

Below the portrait, the text "Lorelai Gilmore" is displayed in a large, bold font.

Underneath the name are three green, underlined links: "Email Invite", "Save to Judge List", and "Print Judge Address Label".

At the bottom left, the text "Judging Points: 24 | Seminar Points: 248" is shown.

Vertical decorative panels with blurred landscape images are on the far left and right edges.

USABILITY REPORT

Participant one was introduced to the Vintage Sports Car Association of Virginia website and were first asked to browse through the site without a prefix to capture their initial reactions. In their exchanges they expressed approval of the web pages' consistent navigation and thought it to be aesthetically pleasing overall and easy to use. They were able to move around the site pretty quickly and easily without any guidance.

They noted that the pages looked very polished, professional looking, and had all the qualities that they would look for in a "Contact Us" section. They expressed however that the landing page looked too dreary in comparison to the other pages and thought a brighter photo should have been used for more of a "wow factor".

They were then told to replicate a meeting coordinator's role of browsing for judge candidates and searching for those that specifically meet their criteria. They navigated to the judge report of and expressed that the judge information was misaligned and should have been centered. Additionally they thought it was too vague and should have included a few more details about each candidate's qualifications when viewing all the judges at once. They then entered into the judge details and liked that each button was shown right under the judge's name. They noted that if the judges were searched by their zip code or address that information should have shown on their profile as well.

Participant two was shown Virginia Sports Car Association of Virginia's website and asked to browse around just as participant one was instructed to familiarize himself with how things were laid out and worked. After having a few minutes to get acquainted with everything he was asked what he thought of the site so far. He said he liked the overall use of the site but thought that some of the pictures didn't relate to a car club as much as they could. He also felt that the home page background was too dark and suggested that it could be replaced with photos from actual events held and updated periodically. He thought it would be neat if the background changed every 20 seconds or so.

Participant two also felt that the site had a professional look and felt comfortable in using it the first time. One criticism he made was on the judge report page where you can choose to email invites, save to judge list and print address label. He felt that the options should either be aligned farther to the left or even made into more of a button look.

Next participant two was instructed to assume a coordinator's role and browse for judges for an event that meet a certain criteria. He was able to find out how to login in very easily and was then able to locate where to look up judges. He also thought like participant one that there should be more information about each judge listed on their page with the total points accumulated. He suggested that the picture with the graphs where the judges are listed is unnecessary as well. He thought it would look better to have the judges listed with more information about them instead of having them listed beside that picture.

GANNT Chart

Task	Start	Finish	Duration	Task Name
68 Create Gantt Chart/WBS	Sat 10/22/16	Mon 10/24/16	16 hrs	16 hrs
69 Collect estimations of task completions	Sat 10/22/16	Mon 10/24/16	16 hrs	16 hrs
70 Develop WBD	Sat 10/22/16	Mon 10/24/16	2 days	2 days
71 Project Closeout	Mon 10/24/16	Mon 10/24/16	1 day	1 day
72 ↳ Sequence Diagram Project Planning	Fri 10/28/16	Fri 10/28/16	8 hrs	8 hrs
73 Review System Request	Fri 10/28/16	Fri 10/28/16	30 mins	30 mins
74 Brainstorming	Fri 10/28/16	Fri 10/28/16	30 mins	30 mins
75 ↳ Sequence Components Identification	Fri 10/28/16	Fri 10/28/16	4 hrs	4 hrs
76 Identify Objects	Fri 10/28/16	Fri 10/28/16	0.8 hrs	0.8 hrs
77 Identify Classes	Fri 10/28/16	Fri 10/28/16	0.8 hrs	0.8 hrs
78 Identify User Interfaces	Fri 10/28/16	Fri 10/28/16	0.8 hrs	0.8 hrs
79 Identify Use Case Stories	Fri 10/28/16	Fri 10/28/16	0.8 hrs	0.8 hrs
80 Determine Relationships	Fri 10/28/16	Fri 10/28/16	0.8 hrs	0.8 hrs
81 ↳ Sequence Class Descriptions	Sat 10/29/16	Mon 10/31/16	2 days	2 days
82 Develop Descriptions	Sat 10/29/16	Sat 10/29/16	1 day	1 day
83 Review Descriptions	Sun 10/30/16	Sun 10/30/16	4 hrs	4 hrs
84 Description Edits	Sun 10/30/16	Sun 10/30/16	2 days	2 days
85 ↳ Sequence Diagram Creation	Sat 10/29/16	Mon 10/31/16	2 days	2 days
86 Development	Sat 10/29/16	Sat 10/29/16	8 hrs	8 hrs
87 Diagram Review	Sun 10/30/16	Sun 10/30/16	4 hrs	4 hrs
88 Diagram Edits	Sun 10/30/16	Sun 10/30/16	1 day	1 day
89 Cover Page Creation	Sun 10/30/16	Sun 10/30/16	30 mins	30 mins
90 ↳ Create Gantt Chart/WBS	Sun 10/30/16	Sun 10/30/16	2 hrs	2 hrs
91 ↳ Estimations of task duration	Sun 10/30/16	Sun 10/30/16	1 hr	1 hr
92 Develop WBD	Sun 10/30/16	Sun 10/30/16	1 hr	1 hr
93 Project Closeout	Mon 10/31/16	Tue 11/1/16	2 days	2 days
94 ↳ Project Planning	Fri 11/4/16	Fri 11/4/16	6 hrs	6 hrs
95 Review System Request	Fri 11/4/16	Fri 11/4/16	30 mins	30 mins
96 Brainstorming	Fri 11/4/16	Fri 11/4/16	30 mins	30 mins
97 ↳ Identification	Fri 11/4/16	Fri 11/4/16	6 hrs	6 hrs
98 Identify States	Fri 11/4/16	Fri 11/4/16	1 hr	1 hr
99 Identify Events	Fri 11/4/16	Fri 11/4/16	1 hr	1 hr
100 Identify State Conditions	Fri 11/4/16	Fri 11/4/16	1 hr	1 hr
101 Identify Transitions	Fri 11/4/16	Fri 11/4/16	1 hr	1 hr
102 Identify Guard Conditions	Fri 11/4/16	Fri 11/4/16	1 hr	1 hr
103 Identify conditions for final state	Fri 11/4/16	Fri 11/4/16	1 hr	1 hr
104 ↳ Class Descriptions	Thu 11/10/16	Mon 11/14/16	3 days	3 days
105 Develop Descriptions	Thu 11/10/16	Thu 11/10/16	1 day	1 day
106 Review Descriptions	Fri 11/11/16	Mon 11/14/16	16 hrs	16 hrs
107 Description Edits	Fri 11/11/16	Mon 11/14/16	2 days	2 days
108 ↳ State Diagram Creation	Tue 11/15/16	Thu 11/10/16	3 days	3 days
109 Development	Tue 11/15/16	Tue 11/16/16	1 day	1 day
110 Diagram Review	Wed 11/16/16	Wed 11/16/16	1 day	1 day
111 Diagram Edits	Thu 11/17/16	Thu 11/10/16	1 day	1 day
112 Cover Page Creation	Fri 11/11/16	Fri 11/11/16	30 mins	30 mins
113 Create Gantt Chart/WBS	Fri 11/11/16	Mon 11/14/16	4 hrs	4 hrs
114 Estimations of task duration	Mon 11/14/16	Mon 11/14/16	2 hrs	2 hrs
115 Develop WBD	Mon 11/14/16	Mon 11/14/16	2 hrs	2 hrs
116 Project Closeout	Mon 11/14/16	Mon 11/14/16	1 day	1 day
117 ↳ Project Planning	Mon 11/21/16	Mon 11/21/16	5 hrs	5 hrs
118 Review System Request	Mon 11/21/16	Mon 11/21/16	30 mins	30 mins
119 Brainstorming	Mon 11/21/16	Mon 11/21/16	30 mins	30 mins
120 ↳ Identification	Mon 11/21/16	Mon 11/21/16	4 hrs	4 hrs
121 Identify Windows	Mon 11/21/16	Mon 11/21/16	1 hr	1 hr
122 Identify Forms	Mon 11/21/16	Mon 11/21/16	1 hr	1 hr
123 Identify Buttons	Mon 11/21/16	Mon 11/21/16	1 hr	1 hr
124 Identify Transition Paths	Mon 11/21/16	Mon 11/21/16	1 hr	1 hr
125 ↳ Navigation UI Development	Sat 11/19/16	Sat 11/26/16	5 hrs	5 hrs
126 Set up Wix Account	Sat 11/26/16	Sat 11/26/16	0.25 hrs	0.25 hrs
127 Page Development	Sat 11/26/16	Sat 11/26/16	3 hrs	3 hrs
128 Form Development	Sat 11/26/16	Sat 11/26/16	0.5 hrs	0.5 hrs
129 Write Content	Sat 11/26/16	Sat 11/26/16	0.5 hrs	0.5 hrs
130 Navigation Bar	Sat 11/26/16	Sat 11/26/16	0.2 hrs	0.2 hrs
131 Provide Screenshots	Sat 11/26/16	Sat 11/26/16	0.25 hrs	0.25 hrs
132 Navigation Bar	Sat 11/26/16	Sat 11/26/16	0.2 hrs	0.2 hrs
133 ↳ Windows Navigation Diagram	Wed 11/23/16	Tue 11/29/16	5 days	5 days
134 Development	Wed 11/23/16	Fri 11/25/16	3 days	3 days
135 Diagram Review	Fri 11/25/16	Mon 11/28/16	2 days	2 days
136 Diagram Edits	Tue 11/29/16	Tue 11/29/16	1 day	1 day
137 Usability Test and Report #1	Sun 11/27/16	Sun 11/27/16	1 day	1 day
138 Usability Test and Report #2	Tue 11/29/16	Tue 11/29/16	1 day	1 day
139 Cover Page Creation	Tue 11/29/16	Tue 11/29/16	30 mins	30 mins
140 Create Gantt Chart/WBS	Wed 11/30/16	Wed 11/30/16	8 hrs	8 hrs
141 Estimations of task duration	Wed 11/30/16	Wed 11/30/16	2 hrs	2 hrs
142 Develop WBD	Wed 11/30/16	Wed 11/30/16	2 hrs	2 hrs
143 Project Closeout	Wed 11/30/16	Wed 11/30/16	1 day	1 day
144 Information System Proposal Compilation	Thu 12/1/16	Sat 12/10/16	3 days	3 days