SOFTWARE DEVELOPMENT

OVERVIEW

Participants have the opportunity to use knowledge of cutting-edge technologies, algorithm design, problem-solving principles, effective communication, and collaborative teamwork to design, implement, test, and document a software development project. The project should have educational or social value.

ELIGIBILITY

One (1) team per chapter may participate.

TIME LIMITS

1. Teams are allowed up to five (5) minutes for their presentation.
2. Semifinalists will participate in a LEAP interview that will last a maximum of five (5) minutes.

LEAP

A team LEAP Report is required for this event and must be submitted at event check-in (see LEAP Program).

ATTIRE

TSA competition attire is required for this event.

PROCEDURE

PRELIMINARY ROUND

1. Teams submit their documentation, sign up for a presentation time, and submit LEAP Reports at the time and place stated in the conference program.
2. Teams report to the event area at the time and place stated in the conference program for their scheduled presentation.
3. Teams will give a live demonstration of the functionality of their project, describe the design process, and discuss the value of the project. No more than three (3) team members may present to the judges, for up to five (5) minutes.
4. Judges may ask questions after the presentation is finished.

5. Teams will remove their project and equipment from the area at the completion of their presentation.
6. A list of twelve (12) semifinalists (in random order) will be posted.

SEMIFINAL ROUND

1. Semifinalist teams will report at the time and place stated in the conference program to sign up for a semifinalist LEAP interview.
2. Judges independently evaluate the LEAP Report and interview.
3. The top ten (10) finalists will be announced at the awards ceremony.

REGULATIONS

PRELIMINARY ROUND

A. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. LEAP Report
2. Title page with the event title, the conference city and state, and the year; one (1) page
3. Table of contents; pages as needed
4. Research about the problem; one (1) page
5. Description of the team's project, including:
   a. the problem
   b. solution for the problem
   c. an explanation of the project's educational and social value; up to two (2) pages
6. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member(s) responsible, and comments (see Forms Appendix or TSA website); one (1) page
7. Documentation of the use of a software development process, including the following:
   a. Project requirements; one (1) page
   b. High-level software design; one (1) page
   c. Testing, including code output and desired results; pages as needed

    d. End-user product documentation; pages as needed

8. Team's self-evaluation (of its work) and the project's future prospects; one (1) page

9. List of references used for the project

10. A completed copy of the Student Copyright Checklist (see Forms Appendix or TSA website)

B. All portfolios and presentations become the property of TSA and will not be returned after the event.

C. Teams must provide all necessary hardware to demonstrate their project.

1. This may include a laptop computer, mobile device(s), computer mouse, and/or 20' extension cord.

2. The setup should not exceed 2' x 2' x 2'.

D. National TSA will NOT provide wireless Internet. Students may provide Internet access using a hotspot from a mobile device, however, students should have an alternate presentation plan in case access is unavailable.

SEMIFINAL ROUND

A. The LEAP Report

1. Teams document the leadership skills the team developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

2. Teams will respond to questions about the content of the LEAP Report.

3. Specific LEAP Report regulations can be found in the LEAP Program section of this guide and on the TSA website.

EVALUATION

PRELIMINARY ROUND

1. The quality of work

2. The overall benefit showcased in the participant portfolio

3. The technical skill exhibited in the project

4. The ability to demonstrate and describe the team's software design process

5. How well the problem identified is solved by the software project

SEMIFINAL ROUND

The content and quality of the LEAP Report and interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event aligns with the STEM educational standards of Science, Technology, Engineering, and Mathematics.

CAREERS RELATED TO THIS EVENT

- Graphic designer
- Software engineer

SOFTWARE DEVELOPMENT

2019 & 2020 OFFICIAL RATING FORM

HIGH SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Portfolio is present.
☐ Student Copyright Checklist is present and complete.
☐ Completed LEAP Report is present.
☐ ENTRY NOT EVALUATED

DOCUMENTATION (40 points)

Record scores in the column spaces below.

CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio components (X1)	The portfolio is unorganized and/or is missing three or more components.	The portfolio is somewhat organized; most components are adequate.	The portfolio is organized, complete, and includes all required components.	
Research (X1)	The research is inadequate, and/or very few credible sources are referenced.	The research is adequate, and it includes a few credible sources.	The research is comprehensive, and credible resources are included.	
Description of project (X1)	A description of the project, including an explanation of the problem and the solution for the problem, is poorly presented.	A description of the project, with an explanation of the problem and its solution, is adequate.	A description of the project is clear, concise, and fully addresses the problem and solution.	
Plan of Work log and self-evaluation (X1)	The Plan of Work log and the self-evaluation are incomplete and/or missing key components.	The Plan of Work log and self-evaluation are mostly complete, but they may be overgeneralized.	The Plan of Work log and the self-evaluation are complete and concisely written; they include the reflections of all team members.	
DOCUMENTATION SUBTOTAL (40 points)				

SOFTWARE DESIGN (60 points)

Record scores in the column spaces below.

CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Software coding practices (X2)	The project is inadequately developed in terms of general software coding practices (requirements, design, implementation, and testing).	The project is developed following most general software coding practices (requirements, design, implementation, and testing).	The project is extremely well developed and followed general software coding practices (requirements, design, implementation and testing).	
Complexity (X1)	The software design exhibits little complexity; it appears as a "bare bones" effort.	The software design exhibits some degree of complexity.	The software design is complex, resulting in a highly functional product.	

SOFTWARE DESIGN (60 points) – continued

Creativity (X1)	The work lacks creativity; it is evident there was little original thought in developing the project.	Some elements of creativity are expressed; the solution is somewhat original.	The work exudes creativity; the product is highly original.	
Technical skill (X1)	Little technical skill is exhibited in the software; the levels of software development are not fluid and/or are illogical.	A beyond-basic degree of technical skill is exhibited in the software's design and construction; the software flows somewhat effectively from level to level.	The software exhibits mastery of software design skill that few at this level possess; the software flow is constant and logical.	
Effectiveness (X1)	The software design does not appropriately provide a solution to the intended problem.	The design loosely provides a solution to the intended problem, but it doesn't fully address the problem presented.	The solution to the problem is clear in the software design; the solution is at the forefront of software creation.	
			SOFTWARE DESIGN SUBTOTAL (60 points)	

Record scores in the column spaces below.

PRESENTATION (60 points)

CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	The team seems unprepared and unorganized for the presentation and questions from judges.	The team is prepared for its presentation to judges and answers questions adequately.	The team's presentation is logical, organized, and effective; the team answers judges' questions well.	
Knowledge (X1)	Team members seem to have very little understanding of the concepts in their project; they provide vague answers to judges' questions.	All team members have a general understanding of the concepts discussed and answer questions adequately.	There is clear evidence that all team members have a thorough understanding of the concepts presented in their project.	
Articulation (X1)	The team's presentation is full of illogical thoughts that lack understanding and clarity.	The team's presentation is somewhat logical, clear, and concise.	The team provides a concise, logical, and clear explanation of its project.	
Delivery (X1)	The team is verbose and/or uncertain in its presentation/ interview; participants' posture, gestures, and lack of eye contact diminish the delivery.	The team is somewhat well-spoken and clear in its presentation/ interview; participants' posture, gestures, and eye contact result in an acceptable delivery.	The team is well-spoken and distinct in its presentation/interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective delivery.	
Team participation (X1)	Only one team member communicates with judges; there is no participation from other team members.	Team members participate generally equally and adequately understand the concepts of the project.	All team members fully understand the concepts of the project and share an equal role in answering judges' questions.	
Software demonstration (X1)	Team members are unable to successfully demonstrate their software product.	Team members are able to partially demonstrate the functionality of their software product.	Team members are successful and effective in their project demonstration.	
			PRESENTATION SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

PRELIMINARY SUBTOTAL (160 points)	

Record scores in the column spaces below.

SEMIFINAL LEAP INTERVIEW (16 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
LEAP Report/ Interview (10% of total event points)	The team's efforts are not clearly communicated, lack detail, and/ or are unconvincing; few, if any, attempts are made to identify and/or incorporate the SLC Practices and Behaviors.	The team's efforts are adequately communicated, include some detail, are clear, and/or are generally convincing; identification and/or incorporation of the SLC Practices and Behaviors is adequate.	The team's efforts are clearly communicated, fully-detailed, and convincing; identification and/or incorporation of the SLC Practices and Behaviors is excellent.	
SEMIFINAL LEAP INTERVIEW SUBTOTAL (16 points)				

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (16 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.   **TOTAL (176 points)**

Comments:

_____

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____   Signature: _____

SOFTWARE DEVELOPMENT EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more

2. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge

2. TSA Event Coordinator Report

3. List of judges/assistants

4. Pre-populated flash drives for judges

5. Stick-on labels for entries, as needed

6. Results envelope

7. Envelope for LEAP Reports

8. LEAP Interview Judging Protocol

B. Chairs, as needed for judging

C. Stopwatch for timing semifinalist presentations

RESPONSIBILITIES

AT THE CONFERENCE

1. Attend the mandatory coordinator's meeting at the designated time and location.

2. Report to the CRC room and obtain the coordinator's packet; check the contents.

3. Review the event guidelines and check to see that enough judges/assistants have been scheduled.

4. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

5. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

EVENT CHECK-IN

1. Check in the entries and LEAP Reports at the time stated in the conference program.

2. Anyone reporting who is not on the coordinator's report may check in only after official notification is received from the CRC.

3. Late entries are considered on a case-by-case basis and only when the delay is caused by events beyond participant control.

4. Place an entry number in the upper right-hand corner of each portfolio.

5. Position entries for evaluation and viewing by judges.

6. Secure the entries in the designated area.

7. Inspect the area in which the presentations are to be held. There must be a table and seating for at least five (5) people.

PRELIMINARY ROUND

1. Conduct presentations. Judges should be sure to ask questions.

2. Judges independently evaluate the entries.

3. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and CRC manager to determine either:

   a. To deduct twenty (20%) of the total possible points in this round or

   b. To disqualify the entry

   c. The event coordinator, judges and CRC manager must initial either of these actions on the rating form.

4. Judges determine the twelve (12) semifinalists.

5. Review and submit the semifinalist results and any related items/forms in the results envelope to the CRC room for posting.

SEMIFINAL ROUND

1. Inspect the area in which the interviews are to take place. Ensure there is a table and seating for interviews.

2. At least one (1) hour before the event is to begin, meet with semifinalist judges to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager begore the event begins.

3. Semifinalists will participate in a LEAP interview that will last a maximum of five (5) minutes.

4. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and CRC manager to determine either:

   a. To deduct twenty (20%) of the total possible points in this round or

   b. To disqualify the entry

   c. The event coordinator, judges and CRC manager must initial either of these actions on the rating form.

5. Judges determine the top ten (10) finalists in rank order, and discuss and break any ties. (Determine the procedure for breaking ties before the onsite competition begins.)

6. Review and submit the finalist results and all items/forms in the results envelope to the CRC room.

7. Manage security and the removal of materials from the area.