



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

Participants are limited to one (1) team per chapter.

TIME LIMITS

- A. Entries must be started and completed during the current school year.
- B. Teams are allowed up to five (5) minutes for their presentation.
- C. Semifinalists will participate in a LEAP interview that will last a maximum of five (5) minutes.

LEAP LEADERSHIP RESUME/INTERVIEW

A Team LEAP Leadership Resume is required for this event and must be submitted at event check-in. Semifinalists will respond to interview questions related to their submitted LEAP Resume for a maximum of five (5) minutes.

ATTIRE

Competition attire, as described in the [National TSA Dress Code](#) section of this guide, is required for this event.

PROCEDURE


- A. Teams submit their documentation, sign up for a presentation time, and submit LEAP Leadership Resumes at the time and place stated in the conference program.
- B. Teams report to the event area at the time and place stated in the conference program for their scheduled presentation.

- C. Teams have no more than five (5) minutes to set up their project. Teams must provide all necessary hardware to demonstrate their project. This may include a laptop/desktop computer, mobile device(s), monitor, computer mouse, and/or 20' extension cord. 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.
- E. No more than three (3) team members may present to the judges, for up to five (5) minutes. Teams should give a live demonstration of the functionality of their project, describe the design process, and discuss the value of the project. Judges may ask questions after the presentation is finished.
- F. Teams should remove their project and equipment from the area at the completion of their presentation.
- G. Semifinalists will be determined and posted by the CRC.
- H. Semifinalist teams will report at the time and place stated in the conference program to sign up for a semifinalist LEAP interview.
- I. The LEAP interview will last a maximum of five (5) minutes.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and competitive events. This information is found on the website under [Competitions/Updates](#). When students participate in any TSA competitive event, they are responsible for knowing of updates, changes, or clarification related to that event.

REGULATIONS

- 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. Title page with the event title, the conference city and state, and the year; one (1) page
 2. Table of contents; pages as needed
 3. Research about the problem; one (1) page
 4. Description of the team's project, including: the problem, solution for the problem, and an explanation of the project's educational and social value; up to two (2) pages
 5. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member(s)

 Read the General Rules and Regulations section in the front of this guide for information that applies to all of TSA's competitive events.



- responsible, and comments (see Forms Appendix or TSA website); one (1) page
6. 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
 7. Team's self evaluation (of its work) and the project's future prospects; one (1) page
 8. List of references used for the project
 9. A completed copy of the Student Copyright Checklist (see Forms Appendix or TSA website)
- B. All portfolios and presentations become the property of TSA, Inc., and will not be returned after the event.
- C. LEAP Leadership Resume (see Forms Appendix or TSA website)/Interview — Teams document, in the LEAP leadership resume (see resume template), the leadership skills that the team has developed and demonstrated while working on this event. Semifinalists will respond to questions about the content of their resume as part of their presentation and/or interview. The LEAP Leadership Resume/Interview guidelines and other resources can be found on the [TSA website](#).

EVALUATION

Evaluation is based on the quality of work and overall benefit showcased in the participant portfolio, and the LEAP requirements. Teams will be judged on the technical skill exhibited in their project, the ability to demonstrate and describe their software design process, and how well the problem identified is solved by the software project. Please refer to the official rating form for more information.



STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

TSA AND CAREERS

This competition connects to one or more of the career areas featured in the TSA AND CAREERS section of this guide. Use *The Career Clusters* chart and the *TSA Competitions and The Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Graphic designer
Software engineer



SOFTWARE DEVELOPMENT EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

- A. Event coordinator
- B. Evaluators for portfolios, two (2) or more
- C. Evaluators for semifinalist presentations, two (2) or more

MATERIALS

- A. Coordinator's packet, containing:
 - 1. Event guidelines, one (1) copy for the coordinator and for each evaluator
 - 2. TSA Event Coordinator Report
 - 3. List of evaluators/assistants
 - 4. Pre-populated flash drives for evaluators
 - 5. Stick-on labels for entries, as needed
 - 6. Results envelope
 - 7. Envelope for LEAP Leadership Resumes
 - 8. LEAP Interview Judging Protocol
- B. Chairs, as needed for judging
- C. Stopwatch for timing semifinalist presentations

RESPONSIBILITIES

- A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's packet. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.
- B. 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.
- C. One (1) hour before the event is scheduled to begin, meet with evaluators/assistants to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.
- D. Check in the entries and LEAP Leadership Resumes at the time stated in the conference program. Anyone reporting who is not on the coordinator's report may check in only after official notification is received from the CRC. Late entries are considered



on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

- E. Place an entry number on each portfolio. Position entries for evaluation and viewing by judges. Secure the entries in the designated area.
- F. Inspect the area in which the presentations are to be held. There must be a table and seating for at least five (5) people.
- G. Semifinalists will participate in a LEAP interview that will last a maximum of five (5) minutes.
- H. Conduct presentations. Evaluators should be sure to ask questions.
- I. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager.
- J. Evaluators determine the ranking of the ten (10) finalists in rank order, and discuss and break any ties.
- K. Review and submit the finalist results and all items/forms in the results envelope to the CRC room.
- L. Manage security and the removal of materials from the area.



Participant/Team ID# _____

SOFTWARE DEVELOPMENT

2017 & 2018 OFFICIAL RATING FORM

HIGH SCHOOL

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 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 Leadership Resume is present.
- ENTRY NOT EVALUATED

Documentation (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Evaluators: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline, 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.			
Portfolio components See Regulation A (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.
			SUBTOTAL (40 points)

Record scores in the column spaces below.

Software Design (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Software coding practices (X2)	The project was inadequately developed in terms of general software coding practices (requirements, design, implementation, and testing).	The project was developed following most general software coding practices (requirements, design, implementation, and testing).	The project was 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 (continued) (60 points)			
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.
			SUBTOTAL (60 points)

Presentation (60 points)			
CRITERIA	Minimal performance 0-4 points	Adequate performance 5-8 points	Exemplary performance 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.
			SUBTOTAL (60 points)

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

Indicate the rule violated: _____



Semifinalist LEAP Interview (20 points)			
CRITERIA	Minimal performance 0-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
LEAP Leadership Resume/Interview See Regulation C and instructions on TSA website (X2)	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 LEAP Be. Know. Do. criteria.	The team's efforts are adequately communicated, include some detail, are clear, and/or are generally convincing; identification and/or incorporation of the LEAP Be. Know. Do. criteria is adequate.	The team's efforts are adequately communicated, include some detail, are clear, and/or are generally convincing; identification and/or incorporation of the LEAP Be. Know. Do. criteria is adequate.
			SUBTOTAL (20 points)

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

Indicate the rule violated: _____

(To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.) **TOTAL (180 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____