EAIE

Esports as Accelerator for Social Inclusive Education

LESSON

BUG HUNT CHAMPIONSHIP

AUTHOR

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CODEARTS SOLUTIONS

BUG HUNT CHAMPIONSHIP

Bug Hunt Championship teaches PHPUnit through a gamified debugging competition set inside a small esports application. Students write tests that expose intentional defects, fix the underlying PHP code and progress through increasingly complex rounds while practising clean, maintainable automated testing.

Subject and level

VET backend-development and quality-assurance learners with basic PHP knowledge who need practical experience writing, running and interpreting unit tests with PHPUnit.

Connection to curriculum

The activity supports automated testing, debugging, clean code and quality assurance. It covers common PHPUnit assertions, test design and the relationship between a failing test, a reproducible defect and a verified fix in a professional PHP workflow.

Didactic and pedagogic considerations

Gamification provides visible progress without reducing testing to speed alone. Students earn points for meaningful tests and successful fixes, while peer review and teacher feedback focus on readability, independence and the reasoning behind each assertion. Difficulty increases gradually to maintain challenge.

Time estimate

2.5 hours

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Group size

15-24 students

Overall introduction to exercise

Students work through a sequence of bug levels in a prepared esports PHP application. Each level contains a defect related to tournament scores, player validation or match data. The correct way to progress is to write a PHPUnit test that exposes the problem before changing production code.

The championship format motivates students to search systematically for edge cases while preserving professional practice. A leaderboard tracks completed levels, but bonus points reward clear test names, useful assertions and fixes that do not break previous behaviour.

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Exercise as presented to the students

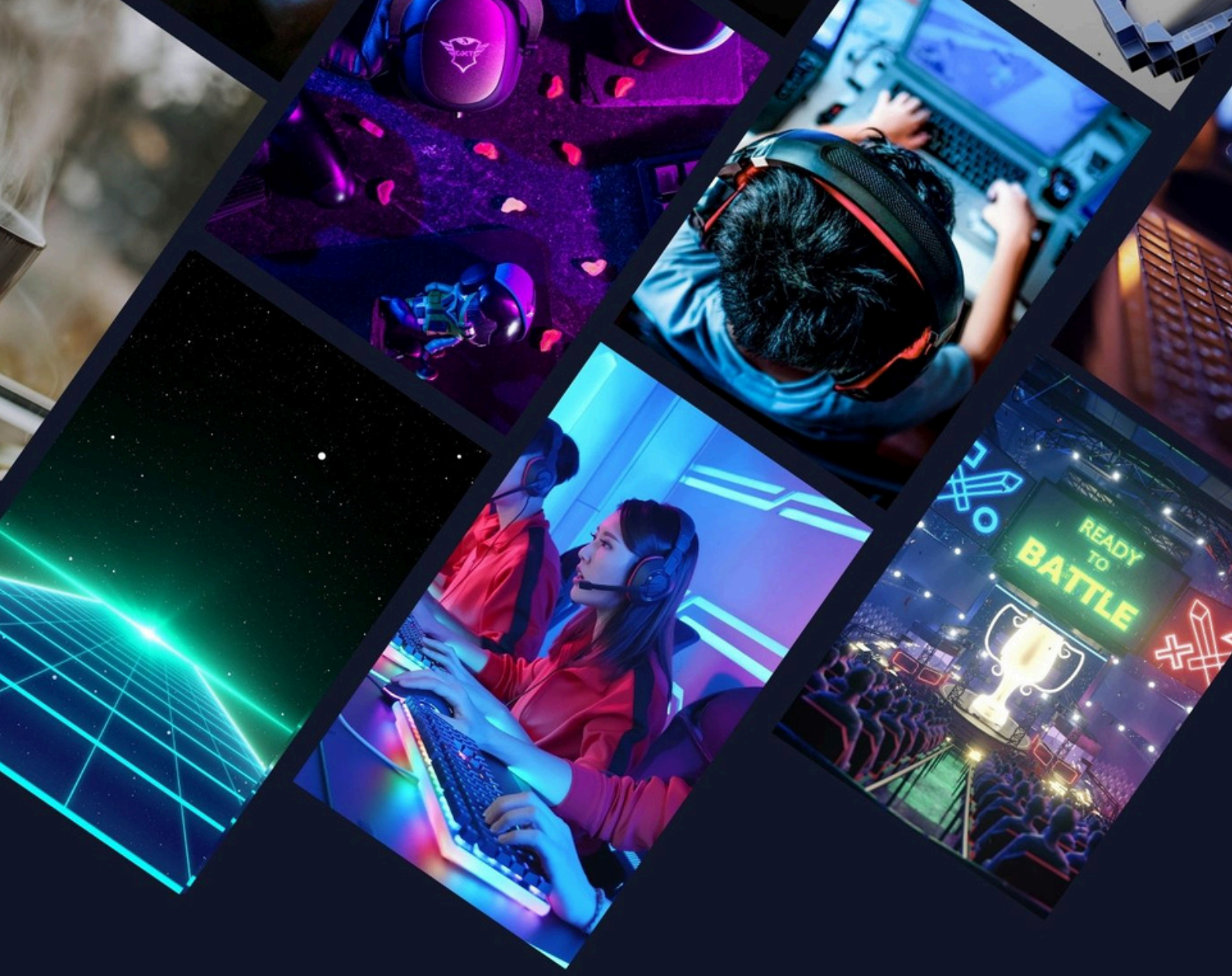
The session starts with a short demonstration of a PHPUnit test using a simple esports scoring function. The teacher reviews the arrange, act and assert structure and then explains the championship rule: a bug is not considered found until a test can reproduce it. Students work in pairs with a prepared PHP project and PHPUnit already configured.

Round one contains basic defects that can be exposed with assertions such as assertEquals and assertTrue. Teams write tests for score calculations and simple validation rules, run the suite and only then modify the application code. Each successful red-to-green cycle earns a point and unlocks the next bug description.

Round two introduces edge cases: invalid player names, unexpected match states and formatted identifiers. Students use additional assertions, including regular-expression checks where appropriate, and are encouraged to name tests in a way that describes the expected behaviour. The teacher reviews test quality at checkpoints rather than accepting passing output alone.

In the championship round, teams receive a less specific bug report and must decide which tests are needed to isolate the fault. Pairs then exchange one test file for peer review, checking whether the test is independent, understandable and likely to protect against regression. Bonus points are awarded for concise fixes and useful coverage of boundary cases.

The final discussion compares debugging strategies and asks students to identify which test gave the most confidence in a fix. Each pair completes a short reflection on one PHPUnit feature they learned and one bug that required deeper reasoning. Assessment combines correct tests, successful fixes, code clarity, peer feedback and the ability to explain why automated testing matters in professional backend development.



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