Vladislav Artiukhov

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Education

HSE University Saint Petersburg, Russia

Applied Mathematics and Computer Science, undergraduate *2021-2025*

***Relevant courses**: algorithms and data structures, programming language C++/Python, algebra, discrete math, mathematical analysis.*

Projects

InVasion - C++ team project | *C++17, Boost, Protobuf, Godot* January - June 2022

Online multiplayer 2.5D shooter with server-side game physics processing.

- Implemented models of the game session, players, bullets and weapons, as well as an algorithm for calculating collisions of game objects, shooting, weapon rotation and bullet movement.
- Implemented various specializations of game characters and their abilities (throwing a first aid kit and an ammo crate) using polymorphism and the Factory Method pattern.
- Created request/response models and interactors that modify the game model according to client requests.

Shared/unique pointers - C++ library | *C++17* January 2022

- Implemented shared and unique pointer structures that support automatic memory management using C++ templates and following the rule of five.
- Created the ability to provide custom deleting objects for the unique pointer using copy and move constructors.
- Added support of the most functionality provided by pointers from the C++ standard library.

Bank - C++ multithreaded server application | *C++17, Boost.Asio* February 2022

- Implemented a TCP connection using Boost.Asio and std::thread to handle multiple clients.
- Used std::mutex, std::unique_lock to create thread-safeness when transferring funds between users.
- Created the ability to monitor user transactions in real time using std::condition_variable.

BMP image cropper - C++ utility to work with BMP images | *C++17* February 2022

- Implemented a utility that allows to crop and to rotate a provided image in bmp format using C++ bytes casting.
- Used progmas to pack classes that store bmp headers with specific alignment and padding.
- Added error handling and fault tolerance to prevent execution with invalid parameters.

Mytest - C++ library for Unit testing | *C++17, Macros* October 2021

- Implemented the launch of test cases outside the main function by calling class constructors and macros.
- Made it possible to create several levels of nesting for subtests inside tests.
- Implemented a functional approach to the use of static variables in several translation units, which prevents the problems with the order of static variables initialization.

Awards and merit

Olympiad "Lomonosov"in informatics 2021

Prize-winner, 11th (final) grade, 352 participants

Olympiad "Step into the Future"in mathematics 2021

Winner, 11th grade, 350 participants

Olympiad "Innopolis Open"in mathematics 2021

Prize-winner, 11th grade, 70 participants

Open Olympiad for schoolchildren in mathematics from ITMO University 2021

Prize-winner, 11th grade, 833 participants

Olympiad for schoolchildren "Phystech"in mathematics 2021

Prize-winner, 11th grade, 1847 participants

Technical skills

Programming languages: C++17/Boost, Protobuf, JavaScript/React.js, Node.js/Express.js, Python
Development tools: CMake, Git, Docker, Bash, Linux
Languages: English (upper-intermediate), Russian (native)