

# Bytecraft\_

## Project Proposal - AI-Assisted Game Content Creator

CS-C2130 | Software Project

### Introduction

#### AI-Assisted Game Content Creator

New opportunities come with revolutionary new deep learning technologies (such as OpenAI GPT-3). We aim to make a solution in which game writers could **create content** for their games with the assistance of artificial intelligence. End users include game designers and writers in both digital and tabletop game industries.

In the application, the game writer (=user) is able to create a new theme with a prompt (“Dark fantasy game set in underground catacombs”). After that the user can create a category (“dungeon monsters”), and instances of those categories (“skeleton warrior”). Then the user asks the AI assistant to generate content for the instances (short descriptions about what the monsters are, their backgrounds, pictures of the monster, etc.).

The user reviews the given texts and may modify/request new versions from the assistant until they are satisfied with the results. Afterward, the user can export the results to external tools.

Existing solutions present a simple prompt for the user to fill, and the AI will then generate content. This fails to carry context around (eg. theme). The user has to bounce between **multiple existing tools** to create content, as one tool will work with text and other with pictures. The goal of this project is to unify these, while conveying the same context automatically.

#### Bytecraft

We are a new IT-consulting company on the Helsinki/Uusimaa scene. Despite the company being new, we have centuries of experience as Software Developers. Well, probably not centuries, but a lot, gathered in prestigious TOP10 consulting companies in Finland. But we hadn't yet met a company which puts the developer quality experience first, so therefore there was a need for Bytecraft - for Software Craftsmanship (<https://manifesto.softwarecraftsmanship.org/>) as the core value of our company.

Bytecraft has participated twice in the software project, receiving the **quality award** during 2020-2021 and being in the top 6 teams during 2021-2022.

Some of the feedback from the previous years' students about Bytecraft were:

- *Uplifting spirit and lots of useful feedback*
- *Bytecraft's software craftsmanship -ideology and professional community were seen in the project loud and clear*
- *Course was overall positive. Especially the concrete support in form of code reviews and other help were important for the project's success*
- *Excellent! As cooperation partner and teacher/mentor, we received support always when needed and it was easy to communicate between the team and the client*
- *Good, relaxed atmosphere*

We aim to provide same kind of support for this year's group also and once again coach how to build quality software.

## Technologies

You can freely choose the best technology that suits the needs of the project. For example in the backend some technologies could be:

- Kotlin/Scala/Clojure (or any other JVM-language)
- Python
- Node.js with Typescript
- Rust

The content creation should be done using one or more of existing solutions, eg. GPT-3, Stable Diffusion and the like. One option would be to use different engines at the same time, as different AIs will work better with different content.

This is going to be primarily a backend-heavy project, but a lightweight frontend could be written with eg. React and Typescript.

We recommend Git for version control. The backend could be run on a cloud platform, for example Heroku. The group can freely choose how to run the app, it can mean for example ranging from Docker containers to serverless backend functions.

The technical support we can provide will be better for some technologies compared to others, as we aren't experts in everything.

## Requirements for the students

We challenge you to take initiative in designing and realizing a solution to our presented problem. We do not expect you to have earlier experience with the technologies, but choosing a familiar technology within the group could help for a better end result. Two attributes to highlight for the project are:

- Experience with (playing) video games
- Willingness to learn more on writing good software

Last year we met roughly once per week live at our office in Pasila, and other meetings were remote. This is completely negotiable though, depending on the wishes of the student team. Our office spaces can be used for this project as much as needed.

## Legal issues

The results are published under open source license MIT. Signing the non-disclosure agreement (NDA) included in the Aalto's contract template is required. NDA is solely required for convenience reasons to be able to provide company premises as working space for students. The resulting code will be under an open-source license.

## Client

Following representatives from Bytecraft are available:

- Antti Halava, Product Owner, Technical support (*antti.halava@bytecraft.fi*)
- Jaakko Hannikainen, Technical support (*jaakko.hannikainen@bytecraft.fi*)

Also other additional technical support, depending on the chosen technologies.

The Bytecraft office is located at Pasila, Helsinki. The railway station is right next to it.

Bytecraft is a quite young company, but as earlier stated, we have a lot of experience in IT-consulting. We are also firm practitioners of clean code, clean architecture and all that jazz. Every detail of software building blocks matter: from a line of code to compositions of multiple services. Automating is a crucial keyword in achieving all this, be it automating the tests, build, pipelines or even code generation.

But we aren't just about code, we can also provide you with some fun events for team building. We've heard that pizza & beer is popular, maybe something on those lines.

We are also highly interested in sharing the Software Craftsmanship -skills further in the future through possible apprenticeship or junior developer roles. Check more from:

<https://www.bytecraft.fi/> (sorry, Finnish only atm)