

Software Design and Implementation

Seminar D

This exercise involves the analysis of a problem domain and design of the appropriate classes needed for one of the strands in CW2. The outcome of this exercise will be logged with and signed off by your lab tutor by **Friday 4th of March**.

Problem Domain

You are a newly recruited analyst programmer, working for a major IT company. This company won a contract to develop a project management system for TrekStar Pictures. This system has to manage information about film projects, such as “E.T.” and the “Fast and the Furious” series.

In a meeting with a TrekStar Pictures representative, a number of requirements have been discussed and you have identified the following:

Every time the production of a new film begins, a new project is created. This **project** has all the relevant information regarding the production of the film. Each new project has a title, summary, genre, release date, list of filming locations, language, runtime, keywords and a weekly ticket sale (theatrical weekly box office).

TrekStar pictures launches together with the film, a series of **materials** for retail. These comprise single-sided DVDs, double-sided DVDs, combo box sets (containing two or three DVDs), VHS (on old projects) and Blu-rays. All of them contain features such as identification number, film title, format, audio format (Dolby, Dolby digital, MPEG-1, PCM or DTS), run time, language, retail price, subtitles, frame aspect (wide screen). However, each of them has different packaging specifications. A single or double DVD will have a plastic box packaging, while a combo box set would have a cardboard box. The Blu-ray would also have a plastic box as the DVD, but with a different size. A VHS can come in a plastic or cardboard package.

DVDs and Blu-ray can have multiple language tracks and subtitles in different languages, compared to VHS that can only have one subtitle and one audio track. In addition, DVDs and Blu-rays may contain bonus features (additional material such as short films or director comments of the production). For double-sided DVDs, it is important to know what contents are in one side, and what in the other (chapters, bonus features and languages).

Model this as an inheritance hierarchy with a **Material** base class and implement a C++ version. Using your classes, code functionality to:

1. Read the details of a collection of materials related to a project from a text file (e.g. csv file) and create an object for each material.
2. Add new materials to a database, persistently (added to the file!).