# Computer Science Christmas Task

The Christmas task is designed to get you learning independently and using other sources to help enhance your programming abilities. It will introduce you to the concept of connecting python and a database so that you can store data from one execution of your program to the next.

Through having connected databases it meant that you can have a program which can access and edit data and store it for a long time.

The database tutorials at <https://pythonschool.net/databases/introduction-to-databases/> will be essential to you being able to complete this project.

The project is set in 3 levels with a minimum expectation of everyone achieving Bronze which is the equivalent to a D or E grade at A-Level as it will be a basic system. Silver will require some advanced techniques and a deeper understanding and is the equivalent to a C or B grade project. Gold will require a lot of independent research to accomplish and will gift you skills that will be very useful in your course. You will need to look up how other solutions work, interpret and break them down so that you can repurpose the code for your own use.

## Bronze – Stock Management System

If you follow the tutorials through you will be able to meet the Bronze requirements which will be the equivalent of D/E grade.

A festive shop stocks various festive items in different categories.

Christmas Decorations

Christmas Food

Christmas Electricals

To achieve a “Bronze” level you must have a python program and a connected sqlite database which will work as a functioning stock management system.

To do this you will need to be able to add new items by providing a name, cost and stock level.

You will need to display all items which are in stock so that the user can “purchase” some

You need to be able to update the stock level when an item is sold, or when new stock is delivered

Finally you will need to ensure that items which are no longer sold are not displayed

## Silver – Allowing customers to shop

Any system which is to be useful as a stock management system really needs to be able to store purchases so that you can use that data for later analysis. Achieving silver would be the equivalent of a C / B grade.

To get this to work you will need multiple tables in the same database, storing information about your customers and also information about the purchases (orders) they have made.

Expanding on your stock system, you need to add a customer table

You should have the ability to add new customers, edit customer details and delete customers

You should be able to store the customers orders, so when something is purchased it is linked to the person who purchased it, and the stock table.

B-Grade Silver projects will also have the ability to display the full order history for a customer.

## Gold – Adding in some analysis

In projects like the ones you might do for coursework the high marks will come from the data processing and analysis that you do. Achieving Gold is the equivalent of achieving an A/B grade project.

Now that you have a system which is storing order histories you need to add the extra levels of complexity in terms of management reports.

Your database should allow a customer to purchase multiple items in one order

You should produce a report which lists the top 5 products, their stock levels and if they have reached a critical level and so need to be re-ordered

You should also produce a report which will list your top 5 customers, how much they have spent and how much profit they have generated (For the purposes of this project, profit is just the difference between purchase price and sale price)

You system could then suggest a suitable reward for your most loyal customers, but you would need to ensure that the cost of the reward doesn’t eliminate the profit.