Introduction

The project work for the AS qualification is based around the writing of a program in a high level language of the candidate's choice. In order to maintain the integrity of the work it is important that the program is not just conjured up out of thin air, but that it actually purports to do something useful. This is a fairly dubious distinction for two reasons, the first is that if the problem to be solved is such that a computer solution is a sensible course of action then the problem is probably too complex to be suitable for an AS project. The second reason is that there will almost certainly be a better method of solution than to write new code. In most cases this will tend to be the tailoring of some generic software. What, then, is the purpose of this project?
The A2 project is based on the premise of the student demonstrating their abilities as a systems analyst, very few marks being available for the actual solution to the problem. The AS project is intended as being the other way around. The main body of the marks is for the production of a program in a high level language. It is considered necessary to put this program in context and for that reason the normal process of solving a problem and the stages that you are meant to go through in order to arrive at and explain your solution are also important. However, the emphasis should be on the solution and consequently students should not end up with enormous volumes of work as they tend to do for their A2 project. As a guide, if your final project report is more than 20 sides of A4 then you have probably done too much. Remember that these figures are only meant as a guide but an indication of the number of pages expected is shown for each of the different parts of the work.

The selection of the high level language to use is important. My own preference would be for a straight forward procedural language like standard Basic or Pascal. Keep things as simple as possible. Many centres will want to use Visual Basic as they have grown used to that with the structured tasks work, or will want to use a full object oriented or declarative language. The choice is down to the centre and the student, but do bear in mind the requirements of the syllabus and the degree of difficulty inherent in the work proposed. Most students can follow the simple logic necessary for the production of work using a simple procedural language, the uses of other types of language run the risk of adding an extra layer of difficulty for students that might be to the detriment of the success of the projects.

The selection of the problem to be solved is important. It is necessary to select something which

- has a real end user in order to make the documentation sections possible. It is not possible to collect information unless you have someone to ask. Do not worry too much about this, it is not meant to be as rigorous as the A2 work but the student should be able to relate the work to a real person.
- has enough complexity for the student to be able to demonstrate their ability to use all 8 of the programming techniques in the syllabus, otherwise they will be penalising themselves.
- is not too complex because the degree of difficulty is quite clearly laid out in the syllabus and if students choose to work at a level beyond that which is prescribed they may end up with a beautiful piece of work but will have spent more time than was necessary to achieve the same assessment.
- the student will find satisfying. The majority of students will be happy to get something working and to pick up as many marks in the assessment as possible. However, there are always some students who are particularly able or who really

enjoy programming and it would be wrong to hold them back. Students are not penalised for choosing to do something that is more difficult, although they may penalise themselves if they spend too much time on this to the detriment of other parts of the assessment or, indeed, their other subjects.

The question of the end user is a difficult one. These students are a year younger than when they choose the A2 project and that year difference in age translates into a big difference in maturity. For that reason it is expected that many students will find great difficulty in choosing an end user for themselves, the teacher should be prepared for this and have a number of possible end users, with simple problems, available for students to use. Although there is no reason to stop one person acting as the end user for two different students, they should be solving different problems for the user. Two students should not be engaged on the same problem because it is so difficult to ensure that the solutions look different. When it is necessary to have more than one student engaged in producing solutions to the same problem it is important that the finished work shows no evidence of collusion between the students.

Finally, in this introductory section, a pointer to the mark scheme that is published in the syllabus. The mark scheme shows that 36 out of the 50 marks (almost three quarters of the marks) are for producing and testing the solution with just 14 of the marks being for the documentary work. This is completely different from the A2 project where the emphasis was the other way around.

Example of a Typical Problem to be Solved

The maths teacher in the school teaches a sixth form set. The teacher keeps a mark book with details of all the students in the set and, among other things, the marks of each student during the term. The teacher would like this information to be stored on a computer because then a copy can be made to insure the data against it being destroyed, as the teacher is worried that the paper mark book might suddenly burst into flames!! (This last sentence is not as silly as it sounds. We have here a very simple problem containing a small amount of data to be stored, in reality the paper based solution is the best solution, but with the addition of this simple sentence the computer solution suddenly takes on a justification that it did not previously have.)

This simple problem is going to be the one that we will follow through the whole of this section to illustrate what is expected of candidates when they are doing this project. Note that this is not a simplified problem just for illustration, this really is the type of problem that you need to do. Anything more than this and a student is simply wasting their time as far as the assessment is concerned, although they may find a personal satisfaction in doing something more complex.

The main thing to guard against is choosing a problem whose solution does not cover the 8 techniques mentioned in the syllabus as being essential. If any of these are not covered then the project cannot be awarded the marks, no matter how good it is.