The Frontier School was established in 1990 with the objective of providing quality education to children from all walks of life. At present about 1000 students are studying at the school in various classes from class 1 to O-levels. The handling of such a large number of students is getting increasingly difficult. The management has decided to automate the fee receipt system. The fee receipt system must provide information in a format compatible with the student registration system which is already installed at the school. The system should be flexible and should allow for changes in fee structures and rates.

At present the fee receipt procedure is as follows:

At the beginning of every month, a student takes his fee card to the fee receipt clerk. This fee card contains his registration number, his name and class information. The fee receipt clerk uses the registration number to retrieve the student’s record from the student register. This register contains the fee amount for the student (under different categories) e.g. tuition fee, lab charges, bus charges (in case the student avails the school’s transport facilities). These amounts are added to compute the total fee for the student.

After the total fee has been calculated, the fine register is consulted to check whether there is any additional amount to be paid by the student in the form of fines. This amount is added to the total fee, and a fee slip is issued to the student who must take this slip to the school bank for payment.
From the information given in the page above, we get some idea about the system. However, there are a number of issues that need to be discussed with the customer.

Our first step is to ask about the problems in the system, define the scope and objectives.

**Problems**
If you look at the system description it doesn’t discuss any specific problems. Perhaps we need to hold interviews with the users regarding the problems that they are facing.

**Scope**
As far as the scope is concerned, the definition does tell us that we need to develop a fee receipt system. What will this include? The fee receipt procedure tells us the activities that are part of the system. We can define the scope like this:

The system to be developed is a fee receipt system. This system will include functions to:

1) calculate total fee (including deduction of fines)
2) issue and print payslip

The customer must be asked if our understanding is correct.

**Objective**
The objective seems to be:
To develop a flexible system that will enable the management to handle the fee receipts of students efficiently

We can ask the customer if he has any other objective(s) in mind.

**Detailed Study**
Having gained some preliminary knowledge about the system, we can start examining it in more detail. Every activity must be studied and questions must be posed. Although the information provided in the one page write-up is brief, we can start listing some of the functions in the system. These will become our functional requirements. We need to study the system in more detail to arrive at the requirement specification.

1) The student’s record is retrieved from the student register
2) The fee amount is read from the student register
3) The total fee is computed
4) Fine information is read from the fine register
5) The fee is re-computed after deducting the fines
6) Fee slip is issued
Some of the non-functional requirements as indicated in the write-up are:

1) The system must be able to handle at least 1000 students (and more?)

2) The system should be flexible allowing for changes in fee structures and rates

3) The system should provide data in a format compatible with the student registration system

We now have some idea about the system. The next step is to make system models e.g. DFD to identify missing functions and remove ambiguities.
CONTEXT DIAGRAM (APPROACH 2)

OPERATOR

USER REQUESTS, STUDENT DATA

OPERATOR

INTERACT WITH USER

PROCESS FEE REQUEST, STUDENT ID

FEE RECEIPT SYSTEM

FEE SLIP

STUDENT

EDIT REQUEST

STUDENT DATA

STUDENT RECORD

EDIT REQUEST

STUDENT ID

STUDENT DATA

STUDENT RECORD

FEE AMOUNT

ACTUAL FEE

ISSUE SLIP

FEE SLIP

FINE RECORD

FINE AMOUNT

PROCESS FEE