

Automation of Multiple-Choice Examination Marking

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A major difficulty in the use of multiple-choice examinations is the time required to mark the student's answers manually. In order to overcome this problem, and to retain flexibility in the structure of the examination, we have developed and tested a computer programme that relieves the examiner of marking and of preparing class results. It also provides information on the efficacy of the examination questions. It is named SCORE4.

This paper outlines the scope of the programme which runs on an IBM7090 or 7094 computer; and is written in FORTRAN IV. SCORE4 was developed and executed on the Imperial College IBM7090 computer and is undergoing conversion to IBM360 FORTRAN IV level 'G'.

In writing any computer programme, the programmer is faced with two choices. If the amount of information that can be handled at one time is not greater than the internal storage of the machine, then a short processing time can be achieved. The alternative gives virtually unlimited storage, but slows down processing. For this programme, a fast processing time has been chosen. This has imposed certain minor restrictions on the processing of examinations as a whole and on their arrangement. We doubt whether they are of significance in practice.

The restrictions are, at present, as follows:

The maximum number of choices on which any candidate can be tested is 1800, subdivided into 15 groups of 120 choices. For example, an examination may be given that tests information under 15, or fewer, headings. Such a section might have, for example, up to 24 questions of five choices each, or up to 30 questions of four choices each, or any other desired combination.

SCORE4 cannot register results of more than 100 students at one time; so that in examinations of more than 100 students, the results are listed separately in blocks of 100 or less. However, there is no theoretical upper limit to the number of students whose scripts can be processed.

The students' scripts have to be transferred on to punched cards by some method. This is discussed further under methods of input.