Paper Reference(s)

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London Examinations GCE

Computing

Ordinary Level

Advance Notice of Case Study for Paper 1

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CASE STUDY

Bankside High School is a school for girls aged from 11 to 18. It has an entry of 100 pupils per year, organised into four classes of 25. The classes are named by using the year number and one of the letters B, A, N or K.
e.g. In the first year the four classes are 1B, 1A, 1N and 1K.

Every year the Physical Education (P.E.) staff organise a sports day where the classes in each year compete against each other at athletics. Each class must enter two pupils for each of 15 events. No-one may enter more than three events and everyone must enter at least one.

Three points are awarded to a pupil for winning, two points are awarded for coming second, and one point is awarded for coming third. At the end of the competition, the class whose pupils have gained the most points in their year wins a free outing, and the top three pupils in each year are given individual prizes.

Until now the P.E. staff have recorded all the entries and results on paper. This year they want to replace the manual system with a computer-based system and have asked the Computing department to develop one for them. The Head of Computing has asked two of her O Level pupils, Rakhee and Verna, to develop a system for their coursework projects. The two pupils arranged to meet with the Head of P.E. to discuss her requirements.

As a result of the meeting and some other research, Rakhee suggested making a database using three tables.

- PUPIL (pupilID, name, initial, class)

PupilID is taken from the Bankside School's main database and is a seven-digit number. The first four digits show the year of entry, the last three identify the student within that year, e.g. 2003025 shows that the pupil is in the group that joined the school in 2003 and that the pupil was the 25th entrant that year. Name is the pupil's surname and the initial is used if necessary to distinguish between pupils with the same name.

- EVENT (event name, staffID, record)

Event name includes a number to indicate which year group the event is for, e.g. 100 metres 1 is a 100 metre race for pupils in year 1, High Jump 8 is the high jump event for pupils in year 8. StaffID is taken from the school database and shows who will be supervising the event. Record is a 100-byte memo field which shows who holds the record for that event, what the record is, and when it was set.

- Result (event name, studentID, place)

Place is the pupil's finishing position and is used to calculate points and overall winners.

Verna suggested using a spreadsheet. Her idea was to have a multi-sheet workbook with one page for each year. There would be one row for each pupil and one column for each event. Each pupil would have an X placed in the column of each event that the pupil entered. The X is replaced by points if the pupil gained first, second or third place.
The spreadsheet would calculate individual and class points. It would also show the highest scoring classes and individuals in each year.

The P.E. staff also asked the Head of Science if she could adapt her data logging equipment to time the races. They explained that they wished to be able to time all the runners. Previously they had to use stopwatches and could only time the first and second places. Races are started by firing a starting pistol and the Head of Science has decided to use the sound of the pistol to start a timing system. She is going to use a laptop computer and infrared beam as they cross the finish line.

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