

H Prelim 0506 Solution

1. Hirer ID

The same car will be hired by many different drivers. E.g. Vauxhall Zafira SA05 NBT may be hired by A125, B234 and B563 in a particular month.

2. Sex - Text.

Tel No - Text.

3. a. School and pupil - 1 : M

b. Employee and national insurance number - 1 : 1

4. All entity entries must have a unique primary key.

Each primary key value should be non-null (not empty).

5. Data modification - if a telephone extension changes then multiple entries in this table will have to be changed which could lead to mistakes or omissions.

Data deletion - If the 3rd row in the table is deleted, then it is not possible to tell what the telephone extension for room 61 is, as there will be no entry in the table containing this information.

H Prelim 0506 Solution

6. Yes it is possible.

The entity may have no attributes contained within it that are dependant on only one single part of the key. Therefore, it will automatically satisfy 2NF.

7. Sorted fields: Hull type (ascending order) followed by max speed (descending order).

8. Strategic information is used over a long term timescale (possibly between 2 and 5 years), by senior management and has a direct and significant effect on all areas of an organisation. It often involves a great degree of risk.

Tactical information uses mid-term timescales (possibly up to a year), often focussing on one particular aspect of an organisation's operation and involving the mid-level of management.

Strategic information would be a national football association aiming to qualify for the next world cup (potentially a 4 year plan)

Tactical information would be in arranging matches over the next year to suitably test the team in their quest for the overall goal.

9. Presentation and accuracy.

H Prelim 0506 Solution

10. Access has been widened to cover paper records held as well as electronic records.

Cross-border data flow has been banned unless the country receiving the data has adequate laws to protect the privacy of the data.

11. Timelining is setting down the dates and times that particular project tasks are to be accomplished by.

12. A stylesheet can set out fonts and sizes as well as page margin settings.

13. Data security is principally concerned with protecting data from unauthorised access.

Data integrity regards the accuracy of data held.

14. An expert system is a program which aims to provide advice on one particular topic much as a human expert would.

A situation could be in identifying different species of plants.

15. Functionality or performance.

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H Prelim 0506 Solution

16. Pupil (pupil id

& Play name
 address
 town
 postcode
 age
 sex
 tel no
 school
 play
 director
 venue
 date
 character
 role
 grade)

} **Repeating group**

H Prelim 0506 Solution

16. INF

Pupil (pupil id
 name
 address
 town
 postcode
 age
 sex
 tel no
 school)

Play (play
 director
 venue
 date
 character
 role
 grade
 pupil id*)

H Prelim 0506 Solution

16. For 2NF

Pupil (pupil id
name
address
town
postcode
age
sex
tel no
school)

Play (play
director
venue
date
character
role
grade
pupil id*)

H Prelim 0506 Solution

16. 2NF

Pupil (pupil id
name
address
town
postcode
age
sex
tel no
school)

Role (play*
character
role
grade
pupil id*)

Play (play
director
venue
date)

H Prelim 0506 Solution

16. For 3NF

Pupil (pupil id
name
address
town
postcode
age
sex
tel no
school)

Play (play
director
venue
date)

Role (play*
character
role
grade
pupil id*)

H Prelim 0506 Solution

16. 3NF

Pupil (pupil id
name
address
town
postcode
age
sex
tel no
school)

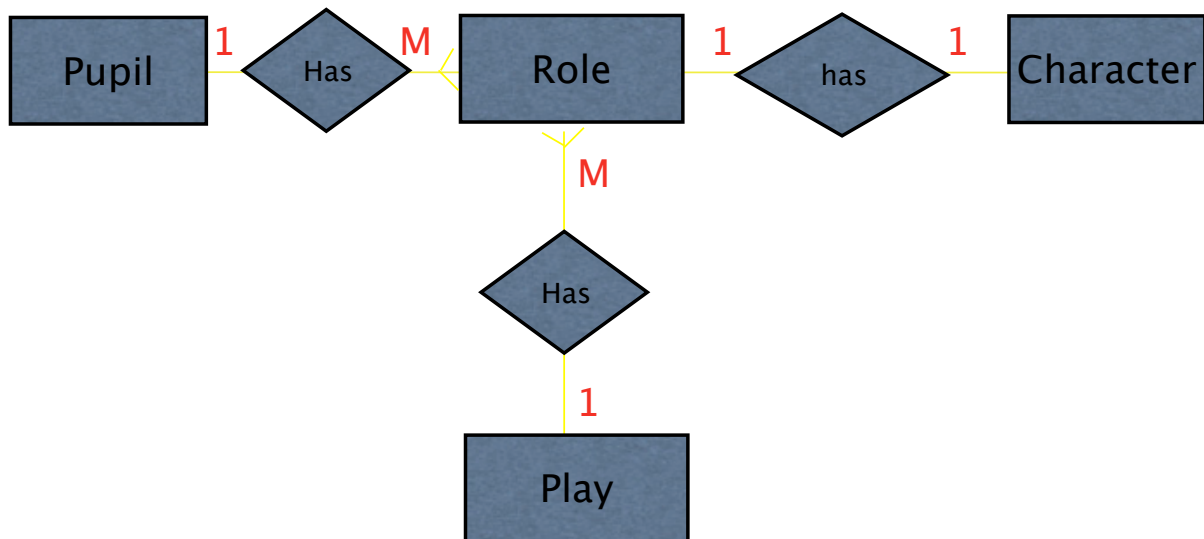
Play (play
director
venue
date)

Role (play*
character*
pupil id*)

Character (character
role
grade)

H Prelim 0506 Solution

16. d. Entity Relationship Diagram



H Prelim 0506 Solution

17. a. Club : Players is 1 : M

Professional : Lessons is 1 : M

Player : Lessons is 1 : M

b. (i). Professional, lesson and player.

(ii). Club, lesson, player.

c. Filemaker Pro Solution

Create a new summary attribute in the lesson table to sum the duration field, called `total_time`.

Create a new layout in lesson.

Add the fields professional id, professional name, date and total-time as part of a sub-summary (sorted by professional name).

Choose to search for the particular month required.

Sort by professional name.

The required report can then be viewed and printed as required.

H Prelim 0506 Solution

d. He is wrong.

The Freedom of Information Act does not apply to private clubs. It includes public and local authorities and institution like the police and Universities.

H Prelim 0506 Solution

18. a. (i). Population within 10 miles would be used to decide where to build the site. The more people in the area would suggest a greater uptake of membership.

(ii). Expected number of members against actual members would be used as a means of control. If the figure is lower than expected they have failed to reach a target and will now have to take action to address this issue.

b. (i). Internal - the actual number of members will be lifted straight from their own database.

(ii). External - the population within 10 miles figures will be taken from local authority statistics.

c. (i). The company will consider the optimisation features of the software by examining the critical path and seeing which jobs can be shortened or can overlap with other tasks.

(ii). Gantt chart.

H Prelim 0506 Solution

19. a. "Future proof" involves selecting resources that will have a significant lifespan and will not become obsolete when new pieces of software and hardware become available.

An example of this would be buying a computer with a far greater amount of memory than you currently require, as future software you purchase may require this increase.

b. (i). The company will have to ask questions such as:

Do the new computers have sufficient processing power to run the system's applications?

Can they operate the current network operating system?

Are they compatible with the existing peripherals that will remain in use?

(ii). The company will have to ask questions such as:

Is the new OS software compatible with the current management software?

Can the new OS run the existing hardware?

Is there appropriate support for the new operating system?

H Prelim 0506 Solution

c. (i). An example of a legacy system could be one particular city office which is not yet getting new hardware and may not be able to function with the new operating system.

(ii). There is still a necessity for this office to function effectively and a legacy system would be in place to ensure this is the case.

d. Install a firewall to check incoming internet traffic and filter out unwanted messages etc.

Encrypt data in transit using a technology such as SSL and their required public and private keys to ensure that data cannot be accessed by unauthorised sources.

Setup strict access rights to ensure that only the relevant personnel have the access to view or download appropriate information.

Setup user names and passwords to verify the identity of anyone trying to access the website.