

Unit 7:

Instructions:

Below you will see a table with data in un-normalised form. You should normalise this data to 3rd Normal Form (3NF), showing each step of the process i.e., demonstrating 1NF, 2NF and 3NF.

Table:

Student Number	Student Name	Exam Score	Support	Date of birth	Course Name	Exam Boards	Teacher Name
1001	Bob Baker	78	No	25/08/2001	Computer science Maths Physics	BCS EdExcel OCR	Mr Jones Ms Parker Mr Peters
1002	Sally Davies	55	Yes	02/10/1999	Maths Biology Music	AQA WJEC AQA	Ms Parker Mrs Patel Ms Daniels
1003	Mark Hanmill	90	No	05/06/1995	Computer Science Maths Physics	BCS EdExcel OCR	Mr Jones Ms Parker Mr Peters
1004	Anas Ali	70	No	03/08/1980	Maths Physics Biology	AQA OCR WJEC	Ms Parker Mr Peters Mrs Patel
1005	Cheuk Yin	45	Yes	01/05/2002	Computer Science Maths Music	BCS EdExcel AQA	Mr Jones Ms Parker Ms Daniels

First Normal Form:

-All rows must be unique(no duplicate rows)

-Each cell must only contain a single value(not a list)

-Each value should be non dividible(cant be split out further)

Student Number(Pri mary Key)	Student Name	Exam Score	Support	Date of birth	Course Name (Primary Key)	Exam Boards	Teacher Name
1001	Bob Baker	78	No	25/08/2021	Computer Science	BCS	Mr Jones
1001	Bob Baker	78	No	25/08/2021	Maths	EdExcel	Ms Parker
1001	Bob Baker	78	No	25/08/2021	Physics	OCR	Mr Peters
1002	Sally Davies	55	Yes	02/10/1999	Maths	AQA	Ms Parker
1002	Sally Davies	55	Yes	02/10/1999	Biology	WJEC	Mrs Patel
1002	Sally Davies	55	Yes	02/10/1999	Music	AQA	Ms Daniels
1003	Mark Hanmill	90	No	05/06/1995	Computer Science	BCS	Mr Jones
1003	Mark Hanmill	90	No	05/06/1995	Maths	EdExcel	Ms Parker
1003	Mark Hanmill	90	No	05/06/1995	Physics	OCR	Mr Peters
1004	Anas Ali	70	No	03/08/1980	Maths	AQA	Ms Parker
1004	Anas Ali	70	No	03/08/1980	Physics	OCR	Mr Peters
1004	Anas Ali	70	No	03/08/1980	Biology	WJEC	Mrs Patel
1005	Cheuk Yin	45	Yes	01/05/2002	Computer Science	BCS	Mr Jones
1005	Cheuk Yin	45	Yes	01/05/2002	Maths	EdExcel	Ms Parker
1005	Cheuk Yin	45	Yes	01/05/2002	Music	AQA	Ms Daniels

Second Normal Form:

-All attributes (non-key columns) dependent on the key(no partial-dependency)

Student Number(Primary Key)	Student Name	Exam Score	Support	Date of birth
1001	Bob Baker	78	No	25/08/2001
1002	Sally Davies	55	Yes	02/10/1999
1003	Mark Hanmill	90	No	05/06/1995
1004	Anas Ali	70	No	03/08/1980

Course Name(Primary Key)	Teacher Name
Computer Science	Mr Jones
Maths	Ms Parker
Physics	Mr Peters
Biology	Mrs Patel
Music	Ms Daniels

Student Number(Primary Key)	Course Name(Primary key)	Exam Boards
1001	Computer Science	BCS
1001	Maths	EdExcel
1001	Physics	OCR
1002	Maths	AQA
1002	Biology	WJEC
1002	Music	AQA
1003	Computer Science	BCS
1003	Maths	EdExcel
1003	Physics	OCR
1004	Maths	AQA
1004	Physics	OCR
1004	Biology	WJEC
1005	Computer Science	BCS
1005	Maths	EdExcel
1005	Music	AQA

Third Normal form:

-Remove transitive dependencies

Course Name(Primary Key)	Teacher Name
Computer Science	Mr Jones
Maths	Ms Parker
Physics	Mr Peters
Biology	Mrs Patel
Music	Ms Daniels

Student Number(Primary Key)	Course Name(Primary key)	Exam Boards
1001	Computer Science	BCS
1001	Maths	EdExcel
1001	Physics	OCR
1002	Maths	AQA
1002	Biology	WJEC
1002	Music	AQA
1003	Computer Science	BCS
1003	Maths	EdExcel
1003	Physics	OCR
1004	Maths	AQA
1004	Physics	OCR
1004	Biology	WJEC
1005	Computer Science	BCS
1005	Maths	EdExcel
1005	Music	AQA

Student Number(Primary Key)	Student Name(Foreign Key)
1001	Bob Baker
1002	Sally Davies
1003	Mark Hanmill
1004	Anas Ali

Student Name(Primary Key)	Date of Birth	Exam Score	Support
Bob Baker	25/08/2001	78	No
Sally Davies	02/10/1999	55	Yes
Mark Hanmill	05/06/1995	90	No
Anas Ali	03/08/1980	70	No

