-- а) Читатели, которые брали книги на прошлой неделе

SELECT DISTINCT R.FullName

FROM Borrowings B

JOIN LibraryCards LC ON B.CardID = LC.CardID

JOIN Readers R ON LC.ReaderID = R.ReaderID

WHERE B.BorrowDate BETWEEN DATEADD(DAY, - (DATEPART(WEEKDAY, GETDATE()) + 6), CAST(GETDATE() AS DATE))

AND DATEADD(DAY, - (DATEPART(WEEKDAY, GETDATE()) + 1), CAST(GETDATE() AS DATE));

-- б) Читатели, которые брали книги, написанные Ахо и Ульманом (в соавторстве)

SELECT DISTINCT R.FullName

FROM Borrowings B

JOIN LibraryCards LC ON B.CardID = LC.CardID

JOIN Readers R ON LC.ReaderID = R.ReaderID

JOIN BookAuthors BA1 ON B.BookID = BA1.BookID

JOIN Authors A1 ON BA1.AuthorID = A1.AuthorID

JOIN BookAuthors BA2 ON B.BookID = BA2.BookID AND BA1.AuthorID <> BA2.AuthorID

JOIN Authors A2 ON BA2.AuthorID = A2.AuthorID

WHERE A1.FullName = N'Ахо' AND A2.FullName = N'Ульман';

-- в) Читатели, у которых на руках две или более книги одного автора

SELECT DISTINCT R.FullName

FROM Borrowings B1

JOIN LibraryCards LC1 ON B1.CardID = LC1.CardID

JOIN Readers R ON LC1.ReaderID = R.ReaderID

JOIN BookAuthors BA1 ON B1.BookID = BA1.BookID

JOIN Borrowings B2 ON LC1.CardID = B2.CardID AND B1.BookID <> B2.BookID

JOIN BookAuthors BA2 ON B2.BookID = BA2.BookID

WHERE B1.ReturnDate IS NULL AND B2.ReturnDate IS NULL AND BA1.AuthorID = BA2.AuthorID;

-- г) Количество книг, находящихся на руках у каждого из читателей

SELECT R.FullName, COUNT(B.BookID) AS BooksOnHand

FROM Borrowings B

JOIN LibraryCards LC ON B.CardID = LC.CardID

JOIN Readers R ON LC.ReaderID = R.ReaderID

WHERE B.ReturnDate IS NULL

GROUP BY R.ReaderID, R.FullName;

-- д) Читатели, прочитавшие более ста книг

SELECT R.FullName, COUNT(B.BookID) AS BooksRead

FROM Borrowings B

JOIN LibraryCards LC ON B.CardID = LC.CardID

JOIN Readers R ON LC.ReaderID = R.ReaderID

WHERE B.ReturnDate IS NOT NULL

GROUP BY R.ReaderID, R.FullName

HAVING COUNT(B.BookID) > 100;

-- е) Читатели, у которых на руках максимальное количество книг

WITH BookCounts AS (

SELECT R.ReaderID, R.FullName, COUNT(B.BookID) AS BooksOnHand

FROM Borrowings B

JOIN LibraryCards LC ON B.CardID = LC.CardID

JOIN Readers R ON LC.ReaderID = R.ReaderID

WHERE B.ReturnDate IS NULL

GROUP BY R.ReaderID, R.FullName

)

SELECT FullName, BooksOnHand

FROM BookCounts

WHERE BooksOnHand = (SELECT MAX(BooksOnHand) FROM BookCounts);

-- ж) Читатели, взявшие книги, которые больше никому не выдавались

SELECT DISTINCT R.FullName

FROM Borrowings B

JOIN LibraryCards LC ON B.CardID = LC.CardID

JOIN Readers R ON LC.ReaderID = R.ReaderID

WHERE NOT EXISTS (

SELECT 1

FROM Borrowings B2

WHERE B2.BookID = B.BookID AND B2.CardID <> B.CardID

);

-- з) Читатели, читающие книги всех жанров

SELECT R.FullName

FROM Readers R

WHERE NOT EXISTS (

SELECT 1

FROM Genres G

WHERE NOT EXISTS (

SELECT 1

FROM Borrowings B

JOIN LibraryCards LC ON B.CardID = LC.CardID

JOIN BookGenres BG ON B.BookID = BG.BookID

WHERE BG.GenreID = G.GenreID AND LC.ReaderID = R.ReaderID

)

);

-- и) Читатели, которые читают только книги жанра «Приключения»

SELECT R.FullName

FROM Readers R

WHERE NOT EXISTS (

SELECT 1

FROM Borrowings B

JOIN LibraryCards LC ON B.CardID = LC.CardID

JOIN BookGenres BG ON B.BookID = BG.BookID

JOIN Genres G ON BG.GenreID = G.GenreID

WHERE LC.ReaderID = R.ReaderID AND G.GenreName <> N'Приключения'

);