```
SELECT * FROM bookings

WHERE doctor_id = ?

AND appointment_date >= ?

AND appointment_date <= ?;
```

1 Proposed Composite Index

```
CREATE INDEX idx_bookings_doctor_date
ON bookings (doctor_id, appointment_date);
```

Order of query

doctor_id ➜ first
appointment_date ➜ second

Reason

Doctor_id =? iis an **equality filter**
Equality filters should appear **before range filters** in an index

because they narrow down the search **to one doctor first**, which is highly selective

We have:

appointment_date >= ?
appointment_date <= ?

This is a **range condition** (between dates)

Indexes work best for ranges when:

- equality columns come first

- range column comes **after**

first find doctor
then search date range within that doctor's records

First diary is divided doctor-wise —>Inside each doctor section, pages are sorted by **date**

So finding:

Dr. Rahul's appointments between 10 Jan and 20 Jan

is very fast.

If you sorted diary only by date, you would search through all doctors → very slow.