



SELECT "Hello World!"

sql_select("Hello World!")

sql_query() |> sql_select("Hello World!")



SELECT p.mrn FROM patient p

p = sql_alias("patient")
sql_join(p) |> sql_select(p.mrn)

p = sql_alias("patient")
p |> sql_select(p.mrn)

(p = sql_from("patient")) |> sql_select(p.mrn)



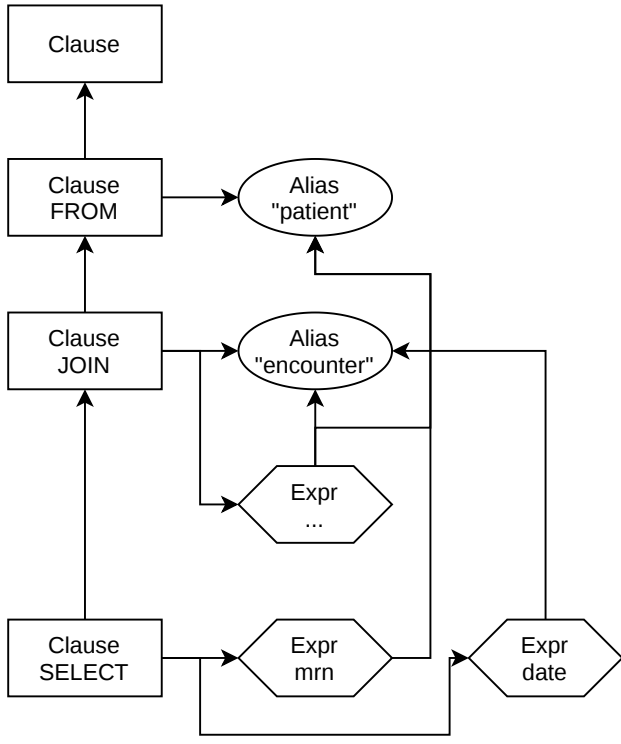
SELECT p.mrn, e.date
FROM patient p
JOIN encounter e ON (p.id = e.patient_id)

p = sql_alias("patient")
e = sql_alias("encounter")
sql_from(p) |> sql_join(e, p.id, == e.patient_id) |> sql_select(p.mrn, e.date)

p = sql_alias(catalog["public"]["patient"])
e = sql_alias(catalog["public"]["encounter"])
sql_from(p) |> sql_join(e, autojoin=p) |> sql_select(p.mrn, e.date)

p = sql_alias("patient")
e = sql_alias("encounter")
p |> sql_join(e, p.id, == e.patient_id) |> sql_select(p.mrn, e.date)

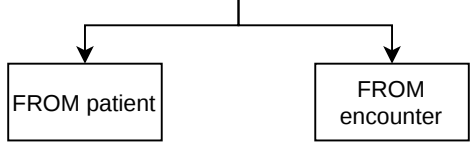
p = sql_alias("patient")
e = sql_alias("encounter")
sql_from(p) |> sql_join(e, p.id, == e.patient_id) |> sql_select(p.mrn) |> sql_select(e.date)



SELECT p.mrn, e.date
FROM patient p
JOIN encounter e ON (p.id = e.patient_id)

p = From("patient")
e = From("encounter")
j = Join(p, e, p.id, == e.patient_id)
Select(j, p.mrn, e.date)

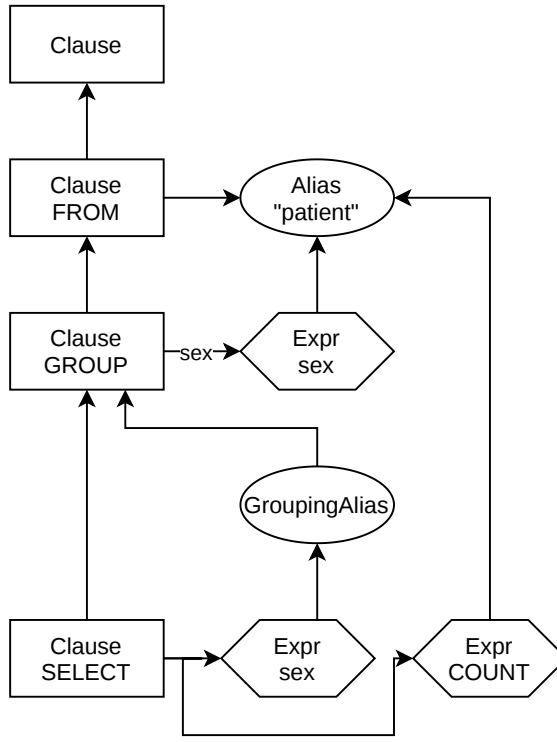
sql_from((p = sql_from("patient")) |> sql_join((e = sql_alias("encounter")), p.id, == e.patient_id) |> sql_select(p.mrn, e.date))



SELECT p.sex, COUNT(p)
FROM patient p
GROUP BY p.sex

p = sql_alias("patient")
g = sql_from(p) |> sql_group(sex = p.sex)
g |> sql_select(g.sex, sql_count(p))

p = From("patient")
g = Group(p, sex = p.sex)
Select(g, g.sex, Count(p))



SELECT p.mrn, COALESCE(g.n_e, 0)
FROM patient p
LEFT JOIN (
 SELECT e.patient_id, COUNT(e) AS n_e
 FROM encounter e
 GROUP BY e.patient_id) g ON (p.id = g.patient_id)

p = From("patient")
e = From("encounter")
g = Group(e, patient_id = e.patient_id)
j = LeftJoin(p, g, p.id, == g.patient_id, omit_if_unused=true)
Select(j, p.mrn, Coalesce(Count(e), 0))

p = From("patient")
e = From("encounter")
g = Group(e, patient_id = e.patient_id)
gs = Select(g, patient_id = g.patient_id, n = Count(e))
j = LeftJoin(p, gs, p.id, == gs.patient_id)
Select(j, p.mrn, Coalesce(gs.n, 0))

p = From("patient")
e = From("encounter")
g = Group(e, patient_id = e.patient_id, summarize=(; n = Count(e)))
j = LeftJoin(p, g, p.id, == g.patient_id)
Select(j, p.mrn, Coalesce(g.n, 0))

SELECT p.mrn
FROM patient p
WHERE p.sex = 'male'

p = From("patient")
w = Where(p, p.sex, == "male")
Select(w, p.mrn)

p = From("patient", columns=["mrn", "sex"])
w = Where(p, Ref(1, 2), == "male", select=[Ref(1,1)])
Select(w, select=[Ref(1,1)])

patient_tbl = Table("patient", [{"id", Int}, {"sex", String}, {"mrn", String}])
encounter_tbl = Table("encounter", [{"id", Int}, {"patient_id", Int}, {"date", Date}])

auto_connect(patient_tbl, encounter_tbl, [{"id", "patient_id"}])

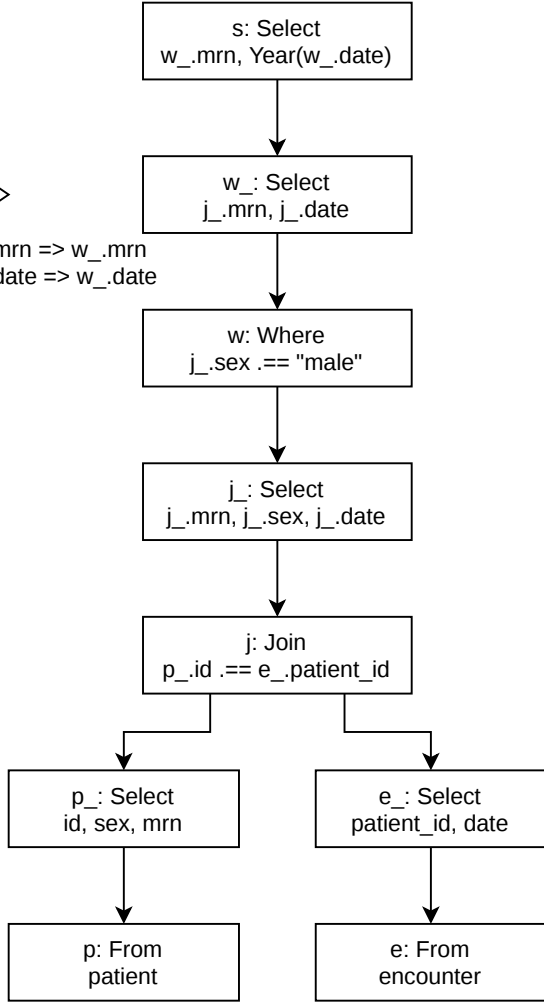
p = From(patient_tbl)
e = From(encounter_tbl)
j = LeftJoin(p, e)
Select(j, p.mrn, e.date)



SELECT p.mrn, EXTRACT(YEAR FROM e.date)
FROM patient p
JOIN encounter e
ON (p.id = e.patient_id)
WHERE p.sex = 'male'



```
p = From(patient)
p_ = Select(p, id = Const(:id), _sex = Const(:sex), _mrn = Const(mrn))
e = From(encounter)
e_ = Select(e, _patient_id = Const(patient_id), _date = Const(:date))
j = Join(p_, e_, p._id, := e._patient_id)
l_ = Select(j, _mrn = p._mrn, _sex = p._sex, _date = e._date)
w = Where(l_, l._sex, := 'male')
w_ = Select(w, mrn = l._mrn, _date = l._date)
s = Select(w_, mrn = w._mrn, year = Year(w._date))
```



normalize

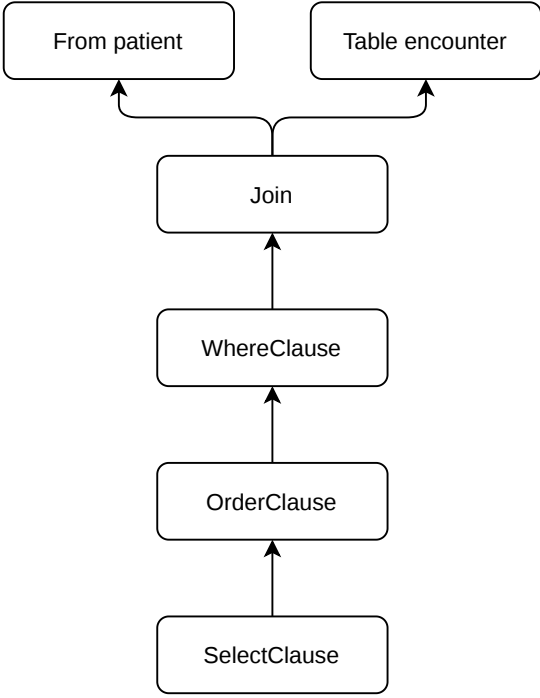
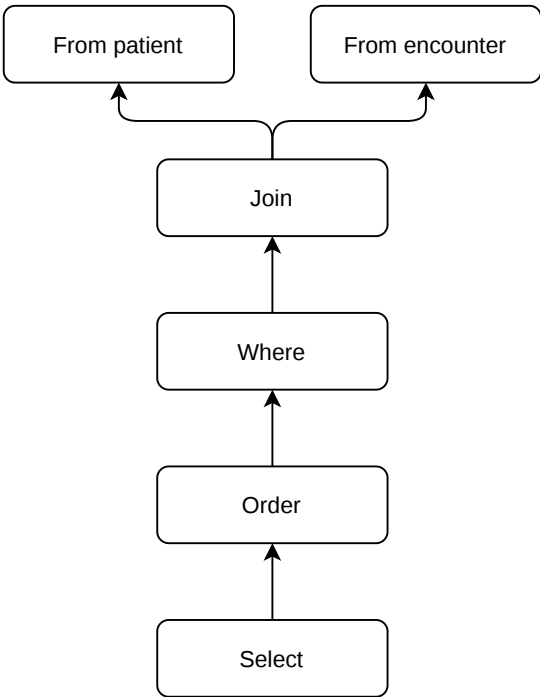
p.mrn => w_mrn
e.date => w_date

SELECT c.person_id, c.peer_id, c.timestamp, c.distance
FROM contact c

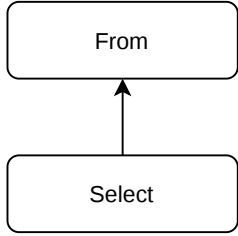
For each pair of persons, find the contact interval when there were detected at least once in a minute in a distance of less than 5 meters.



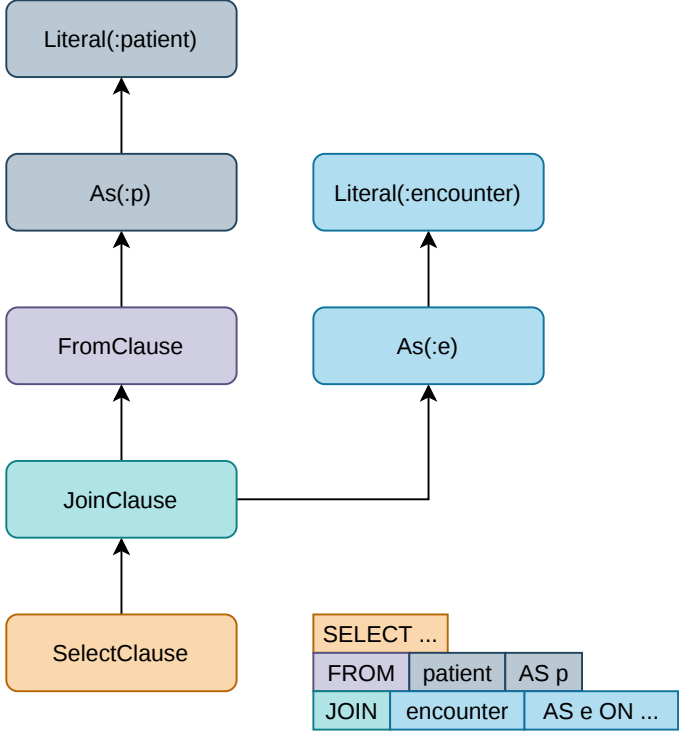
SELECT p.mrn, e.date
FROM patient p
JOIN encounter e ON (p.id = e.patient_id)
WHERE p.sex = 'male'
ORDER BY e.date



SELECT p.mrn
FROM patient p



SELECT p.mrn, e.date
FROM patient p
JOIN encounter e
ON (p.id = e.patient_id)



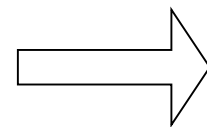
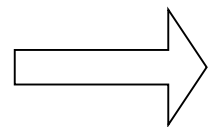
SELECT ...
FROM patient AS p
JOIN encounter AS e ON ...



Clause
:SELECT

Clause
:FROM

Clause
:JOIN



SelectClause
id, mrn, sex

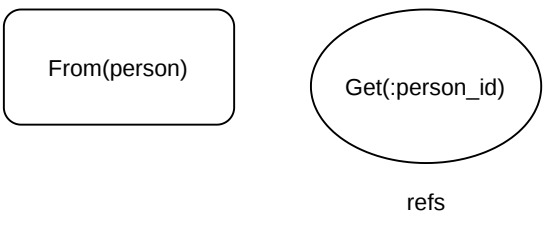
SelectClause
patient_id, date

SelectClause
patient_id, date

SelectClause
patient_id, date



```
WITH RECURSIVE X AS (  
  SELECT 1 AS N  
  UNION ALL  
  SELECT ...  
  ...  
  FROM X  
  ...  
  FROM X)
```





SELECT ... FROM (SELECT) AS ...



SELECT ... FROM (SELECT ...) AS ... WHERE ...



SELECT ... FROM (SELECT ... FROM ...) AS ... WHERE ...



SELECT ... FROM (SELECT ... WHERE ...) AS ... WHERE ...



SELECT ... FROM (SELECT ... JOIN ...) AS ... WHERE ...





