**Total fare on particular train for a passenger**

*create or replace function getfare(tid int,sid int,did int,cls int) returns*

*integer as $body$*

*declare*

*sdis route.sourcedist%type;*

*ddis route.sourcedist%type;*

*finaldist integer;*

*fare integer;*

*begin*

*fare=0;*

*select sourcedist into sdis from route where stationid=sid and trainid=tid;*

*select sourcedist into ddis from route where stationid=did and trainid=tid;*

*finaldist=ddis-sdis;*

*if cls=1 then*

*fare=3\*finaldist;*

*elseif cls=2 then*

*fare=2\*finaldist;*

*else*

*fare=1\*finaldist;*

*end if;*

*return fare;*

*end $body$ language 'plpgsql';*

**Journey hours**

*create or replace function getjourneyhours(in tid int,in sid int,in did int,out tot\_days int,out time\_difference route.arrtime%type) returns record as $body$*

*declare*

*atime route.arrtime%type;*

*dtime route.arrtime%type;*

*days int;*

*dayd int;*

*addtime route.arrtime%type;*

*begin*

*tot\_days=0;*

*select depttime into atime from route where trainid=tid and stationid=sid;*

*select "day" into days from route where trainid=tid and stationid=sid;*

*select arrtime into dtime from route where trainid=tid and stationid=did;*

*select "day" into dayd from route where trainid=tid and stationid=did;*

*time\_difference=dtime-atime;*

*if dtime<atime then*

*tot\_days=dayd-days-1;*

*else*

*tot\_days=dayd-days;*

*end if;*

*end $body$ language 'plpgsql';*

**Book Seats**

*create or replace view booking as select \* from passenger natural join reservation*

*CREATE OR REPLACE FUNCTION railways.bookseat(tid integer, sid integer, did integer, adate date, cls integer, pname character varying, gender character varying, emailid character varying, age integer)*

*RETURNS integer AS*

*$BODY$*

*Declare*

*i booking%rowtype;*

*j booking%rowtype;*

*aseats integer;*

*n integer;*

*cnt integer;*

*state1 integer;*

*state2 integer;*

*id integer;*

*pnrr integer;*

*ssid int;*

*ddid int;*

*state3 int;*

*wait int;*

*sc1 integer;*

*sc2 integer;*

*sc3 integer;*

*sn1 integer;*

*sn2 integer;*

*f integer;*

*begin*

*select stopnumber into sn1 from route natural join trainstatus where trainid = tid and availabledate = adate and stationid = sid;*

*select stopnumber into sn2 from route natural join trainstatus where trainid = tid and availabledate = adate and stationid = did;*

*if sn1< sn2 then*

*select count(seatno) into wait from booking where trainid = tid and availabledate = adate and reservedstatus = 'waiting';*

*if wait>0 then*

*select max(seatno) into wait from booking where trainid = tid and availabledate = adate and reservedstatus = 'waiting';*

*end if;*

*wait =wait+1;*

*select sssid into ssid from (select trainid,stopnumber as sssid from route where trainid = tid and stationid = sid) as r1 natural join route where stationid =did;*

*id =0;*

*select stopnumber into ddid from (select trainid,stopnumber as ssid from route where trainid = tid and stationid = sid) as r1 natural join route where stationid =did;*

*raise notice '% % ',ssid,ddid;*

*pnrr =0;*

*select count(pnr) into pnrr from passenger;*

*if pnrr>0 then*

*select max(pnr) into pnrr from passenger;*

*end if;*

*pnrr = pnrr+1;*

*if cls = 1 then*

*select availableseats1 into aseats from trainstatus where trainid = tid and availabledate = adate ;*

*select seatsclass1 into sc1 from train where trainid = tid;*

*elseif cls =2 then*

*select availableseats2 into aseats from trainstatus where trainid = tid and availabledate = adate ;*

*select seatsclass2 into sc2 from train where trainid = tid;*

*else*

*select availableseats3 into aseats from trainstatus where trainid = tid and availabledate = adate ;*

*select seatsclass3 into sc3 from train where trainid = tid;*

*end if;*

*if aseats > 0 then*

*if cls = 1 then*

*f = getfare(tid,sid,did,cls);*

*update trainstatus set availableseats1 = aseats - 1 where trainid = tid and availabledate = adate ;*

*update trainstatus set bookedseats1 = sc1 -aseats + 1 where trainid = tid and availabledate = adate ;*

*insert into passenger(pnr,pname,gender,age,seatno,class,fare,sourceid,destid) values (pnrr,pname,gender,age,sc1 - aseats + 1,cls,f,sid,did);*

*insert into reservation(emailid,pnr,trainid,availabledate,reservedstatus,reservationdate,seatno,class) values(emailid,pnrr,tid,adate,'confirmed','11/11/2017',sc1 - aseats + 1,cls);*

*return pnrr;*

*elseif cls =2 then*

*f = getfare(tid,sid,did,cls);*

*update trainstatus set availableseats2 = aseats - 1 where trainid = tid and availabledate = adate ;*

*update trainstatus set bookedseats2 = sc2 -aseats + 1 where trainid = tid and availabledate = adate ;*

*insert into passenger(pnr,pname,gender,age,seatno,class,fare,sourceid,destid) values (pnrr,pname,gender,age,sc2- aseats + 1,cls,f,sid,did);*

*insert into reservation(emailid,pnr,trainid,availabledate,reservedstatus,reservationdate,seatno,class) values(emailid,pnrr,tid,adate,'confirmed','11/11/2017',sc2 - aseats + 1,cls);*

*return pnrr;*

*else*

*f = getfare(tid,sid,did,cls);*

*update trainstatus set availableseats3 = aseats - 1 where trainid = tid and availabledate = adate ;*

*update trainstatus set bookedseats3 = sc3 -aseats + 1 where trainid = tid and availabledate = adate ;*

*insert into passenger(pnr,pname,gender,age,seatno,class,fare,sourceid,destid) values (pnrr,pname,gender,age,sc3 - aseats + 1,cls,f,sid,did);*

*insert into reservation(emailid,pnr,trainid,availabledate,reservedstatus,reservationdate,seatno,class) values(emailid,pnrr,tid,adate,'confirmed','11/11/2017',sc3 - aseats + 1,cls);*

*return pnrr;*

*end if;*

*end if;*

*state1= 0;state2=0;*

*for i in select \* from booking order by seatno asc loop*

*raise notice 'seat no % ', i.seatno;*

*select count(destid) into n from booking where seatno = i.seatno and trainid = tid and availabledate = adate group by seatno;*

*raise notice 'booked % ',n;*

*cnt = 0;*

*state1=0;state2=0;*

*state3 =0;*

*for j in select \* from booking where seatno = i.seatno order by destid desc loop*

*if j.destid=ddid then*

*if j.sourceid = ssid then*

*state3 = 1;*

*end if;*

*end if;*

*raise notice 'dest %' , j.destid;*

*cnt = cnt+1;*

*if j.destid<=ssid then*

*state1 =1;*

*id = j.destid;*

*raise notice 'ssid %', ssid;*

*if cnt=1 then*

*state2=1;*

*end if;*

*exit;*

*end if;*

*end loop;*

*cnt=0;*

*raise notice '%' ,id;*

*for j in select \* from booking where seatno = i.seatno order by sourceid asc loop*

*if j.sourceid!=id then*

*cnt =cnt+1;*

*if j.sourceid>ssid and j.sourceid<ddid then*

*exit;*

*end if;*

*if j.sourceid>=ddid then*

*raise notice '% %',j.sourceid,ddid;*

*state2 =1;*

*if cnt=1 then*

*state1=1;*

*end if;*

*exit;*

*end if;*

*end if;*

*end loop;*

*if state1=1 and state2=1 and state3=0 then*

*f = getfare(tid,sid,did,cls);*

*insert into passenger(pnr,pname,gender,age,seatno,class,fare,sourceid,destid) values (pnrr,pname,gender,age,i.seatno,cls,f,sid,did);*

*insert into reservation(emailid,pnr,trainid,availabledate,reservedstatus,reservationdate,seatno,class) values(emailid,pnrr,tid,adate,'confirmed','11/11/2017',i.seatno,cls);*

*return pnrr;*

*end if;*

*end loop;*

*raise notice '% ',aseats ;*

*f = getfare(tid,sid,did,cls);*

*insert into passenger(pnr,pname,gender,age,seatno,class,fare,sourceid,destid) values (pnrr,pname,gender,age,wait,cls,f,sid,did);*

*insert into reservation(emailid,pnr,trainid,availabledate,reservedstatus,reservationdate,seatno,class) values(emailid,pnrr,tid,adate,'waiting','11/11/2017',wait,cls);*

*return pnrr;*

*else*

*return -1;*

*end if;*

*end $BODY$*

*LANGUAGE plpgsql*

**Ticket Cancellation**

*create or replace function cancel(pnrr int) returns void as $body$*

*declare*

*tid integer;*

*adate date;*

*sno int;*

*cls int;*

*flag int;*

*pnnr int;*

*begin*

*update reservation set reservedstatus = 'cancel' where pnr = pnrr;*

*select trainid into tid from booking where pnr = pnrr;*

*select availabledate into adate from booking where pnr = pnrr;*

*select class into cls from booking where pnr = pnrr;*

*select seatno into sno from booking where pnr = pnrr;*

*perform checkavailability(tid,adate,cls,sno);*

*raise notice '% % % %' , tid,adate,cls,sno;*

*select pnr into pnnr from reservation where reservedstatus='waiting' and class=cls and availabledate=adate and seatno=1;*

*if pnnr > 0 then*

*perform getseatsoncancel(pnnr,tid,adate,cls,sno);*

*end if;*

*end $body$ language 'plpgsql';*

**Check Availibility**

*create or replace function checkavailability(in tid int,in adate date,in cls int,in sno int,inout flag int) returns integer as $body$*

*declare*

*aseats integer;*

*bseats integer;*

*cnt integer;*

*begin*

*select count(seatno) into cnt from booking where trainid = tid and availabledate = adate and seatno = sno and class = cls;*

*if cnt=1 then*

*if cls =1 then*

*select availableseats1 into aseats from trainstatus where trainid = tid and availabledate = adate;*

*select bookedseats1 into bseats from trainstatus where trainid = tid and availabledate = adate;*

*update trainstatus set availableseats1 = aseats+1 where trainid = tid and availabledate = adate;*

*update trainstatus set bookedseats1 = bseats-1 where trainid = tid and availabledate = adate;*

*elseif cls =2 then*

*select availableseats2 into aseats from trainstatus where trainid = tid and availabledate = adate;*

*select bookedseats2 into bseats from trainstatus where trainid = tid and availabledate = adate;*

*update trainstatus set availableseats2 = aseats +1 where trainid = tid and availabledate = adate;*

*update trainstatus set bookedseats2 = bseats-1 where trainid = tid and availabledate = adate;*

*else*

*select availableseats3 into aseats from trainstatus where trainid = tid and availabledate = adate;*

*select bookedseats3 into bseats from trainstatus where trainid = tid and availabledate = adate;*

*update trainstatus set availableseats3 = aseats +1 where trainid = tid and availabledate = adate;*

*update trainstatus set bookedseats3 = bseats-1 where trainid = tid and availabledate = adate;*

*end if;*

*flag = 1;*

*raise notice 'here %',flag;*

*end if;*

*end $body$ language 'plpgsql';*

**After cancellation the people on waitlist are updated**

*create or replace function getseats1(pnrr int,tid int,adate date,cls int,i int) returns void as $body$*

*declare*

*aseats int;*

*j booking%rowtype;*

*state1 int;*

*state2 int;*

*state3 int;*

*id int;*

*n int;*

*p reservation%rowtype;*

*cnt int;*

*ssid int;*

*ddid int;*

*sid int;*

*did int;*

*begin*

*select sourceid into sid from passenger where pnr = pnrr;*

*select destid into did from passenger where pnr =pnrr;*

*select sssid into ssid from (select trainid,stopnumber as sssid from route where trainid = tid and stationid = sid) as r1 natural join route where stationid =did;*

*id =0;*

*select stopnumber into ddid from (select trainid,stopnumber as ssid from route where trainid = tid and stationid = sid) as r1 natural join route where stationid =did;*

*if cls = 1 then*

*select availableseats1 into aseats from trainstatus where trainid = tid and availabledate = adate ;*

*elseif cls =2 then*

*select availableseats2 into aseats from trainstatus where trainid = tid and availabledate = adate ;*

*else*

*select availableseats3 into aseats from trainstatus where trainid = tid and availabledate = adate ;*

*end if;*

*if aseats>0 then*

*update reservation set reservedstatus='confirmed' where pnr=pnrr;*

*update reservation set seatno=i where pnr=pnrr;*

*if cls = 1 then*

*update trainstatus set availableseats1 = 0 where trainid = tid and availabledate = adate ;*

*update trainstatus set bookedseats1 = 10 where trainid = tid and availabledate = adate ;*

*elseif cls =2 then*

*update trainstatus set availableseats2 = 0 where trainid = tid and availabledate = adate ;*

*update trainstatus set bookedseats2 = 10 where trainid = tid and availabledate = adate ;*

*else*

*update trainstatus set availableseats3 = 0 where trainid = tid and availabledate = adate ;*

*update trainstatus set bookedseats3 = 10 where trainid = tid and availabledate = adate ;*

*end if;*

*end if;*

*for p in select \* from reservation where reservedstatus = 'waiting' order by seatno asc loop*

*select count(destid) into n from booking where seatno = i and trainid = tid and availabledate = adate and reservedstatus = 'confirmed' group by seatno;*

*cnt = 0;*

*state1=0;state2=0;*

*state3 =0;*

*for j in select \* from booking where seatno = i order by destid desc loop*

*if j.destid=ddid then*

*if j.sourceid = ssid then*

*state3 = 1;*

*end if;*

*end if;*

*cnt = cnt+1;*

*if j.destid<=ssid then*

*state1 =1;*

*id = j.destid;*

*if cnt=1 then*

*state2=1;*

*end if;*

*exit;*

*end if;*

*end loop;*

*cnt=0;*

*for j in select \* from booking where seatno = i order by sourceid asc loop*

*if j.sourceid!=id then*

*cnt =cnt+1;*

*if j.sourceid>ssid and j.sourceid<ddid then*

*exit;*

*end if;*

*if j.sourceid>=ddid then*

*raise notice '% %',j.sourceid,ddid;*

*state2 =1;*

*if cnt=1 then*

*state1=1;*

*end if;*

*exit;*

*end if;*

*end if;*

*end loop;*

*if state1=1 and state2=1 and state3=0 then*

*update reservation set reserved='confirmed' where pnr=pnrr;*

*update reservation set seatno=i where pnr=pnrr;*

*end if;*

*end loop;*

*cnt =1;*

*for p in select \* from reservation where reservedstatus='waiting' order by seatno asc loop*

*update reservation set seatno = cnt where pnr = p.pnr;*

*cnt =cnt +1;*

*end loop;*

*if cls = 1 then*

*update trainstatus set waitingseats1 = cnt-1 where trainid = tid and availabledate = adate ;*

*elseif cls =2 then*

*update trainstatus set waitingseats2 = cnt-1 where trainid = tid and availabledate = adate ;*

*else*

*update trainstatus set waitingseats3 = cnt-1 where trainid = tid and availabledate = adate ;*

*end if;*

*end $body$ language 'plpgsql'*