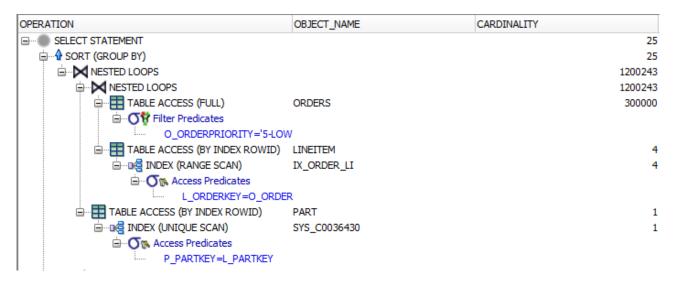
```
CREATE TABLE ARTICOLO
   (A IDArt NUMBER (5,0),
    A Titolo VARCHAR2 (200 BYTE),
      A_Rivista VARCHAR2 (200 BYTE),
    A Vol NUMBER (5,0),
      A Num NUMBER (5,0),
      A Pagg VARCHAR2 (20 BYTE),
      PRIMARY KEY (A_IDArt)
);
CREATE TABLE RICERCATORE
   (R IDRic NUMBER (5,0),
    R Nome VARCHAR2 (30 BYTE),
     R Cognome VARCHAR2 (30 BYTE),
    R Email VARCHAR2 (30 BYTE),
      R Afferenza VARCHAR2 (300 BYTE),
      PRIMARY KEY (R IDRic)
);
CREATE TABLE AUTORE
   (AU IDArt NUMBER (5,0),
    AU IDRic NUMBER (5,0),
      PRIMARY KEY (AU_IDArt,AU_IDRic),
      FOREIGN KEY (AU_IDArt) REFERENCES ARTICOLO (A_IDArt),
      FOREIGN KEY (AU IDRic) REFERENCES RICERCATORE (R IDRic)
);
CREATE TABLE CITA
   (C IDArt NUMBER (5,0),
    C Pos NUMBER (5,0),
      C ArticoloCitato NUMBER (5,0),
      PRIMARY KEY (C_IDArt,C_Pos),
      FOREIGN KEY (C_IDArt) REFERENCES ARTICOLO (A_IDArt),
      FOREIGN KEY (C ArticoloCitato) REFERENCES ARTICOLO (A IDArt)
);
create or replace Function Hindex (vRic number) return int IS
CURSOR cArticoli IS
select count(*) as numCit from Cita C, Articolo A, Autore Au
where A IdArt=C Articolocitato and A IdArt=Au IdArt and Au IdRic=vRic
group by A idArt
order by 1 desc;
vIndex int;
vCit int;
Begin
 vIndex:=0;
 OPEN cArticoli();
    FETCH cArticoli into vCit;
    EXIT WHEN cArticoli%NOTFOUND;
    if vCit>vIndex then
      vIndex:=vIndex+1;
    else
       EXIT;
    end if;
  END LOOP;
  DBMS OUTPUT.PUT LINE('HIndex : ' | | vindex );
  return vIndex;
end;
```

select P_BRAND, count(*)
from TPCD.PART,TPCD.ORDERS, TPCD.LINEITEM
where P_PARTKEY=L_PARTKEY and L_ORDERKEY=O_ORDERKEY and
O_ORDERPRIORITY='5-LOW'
group by P_BRAND;



$$\begin{split} \text{NP}_{\text{PART}} &= \lceil 200.000 \times 131 / \left(4096 \times 0,69 \right) \rceil = 9.271 \\ \text{NP}_{\text{LINEITEM}} &= \lceil 6.001.215 \times 113 / \left(4096 \times 0,69 \right) \rceil = 239.944 \\ \text{NP}_{\text{ORDERS}} &= \lceil 1.500.000 \times 106 / \left(4096 \times 0,69 \right) \rceil = 56.259 \\ \text{Sel} \left(\text{O}_\text{ORDERPRIORITY} = \text{'} 5 - \text{LOW'} \right) = 1/5 \\ \text{NL}_{\text{L}_\text{ORDERKEY}} &= \left\lceil \left(6.001.215 \times 4 + 1.500.000 \times 4 \right) / \left(4096 \times 0,69 \right) \right\rceil = 10.617 \end{split}$$

Costo di accesso con indice ordered a LINEITEM = $2 + \lceil 1/1.500.000 * 10.617 \rceil + \lceil 1/1.500.000 * 239.944 \rceil = 4$

Costo jon L-O = $56.259 + 1.500.000 \times 1/5 \times 4 = 1.256.259$

 $NT_{LI-O} = [6.001.215 \times 1/5] = 1.200.243$

 $NP_{LI-O} = [1.200.243 \times (113+106) / (4096 \times 0.69)] = 93.005$

 $NL_{P_PARTKEY} = = \lceil (200.000 \times 4 + 200.000 \times 4) / (4096 \times 0.69) \rceil = 567$

Costo di accesso con indice ordered a PART = $1 + \lceil 1/200.000 * 567 \rceil + \lceil 1/200.000 * 9.271 \rceil = 3$

Costo jon [L-O]-P = $93.005 + 1.200.243 \times 3 = 3.693.734$

 $NT_{LI-O-P} = 1.200.243$

 $NP_{LI\text{-}O\text{-}P} = \lceil 1.200.243 \times (131 + 113 + 106) / (4096 \times 0,69) \rceil = 148.638$

Costo del group by $2 \times 148.638 \times (\lceil \log_{100} 148.638 \rceil + 1) = 1.189.104$

Costo Totale = 1.256.259 + 3.693.734 + 1.189.104 = 6.139.097