/\* verifica chi quadro con Studenti16 \*/

UPDATE Studenti16 SET AltCl = Switch(

Altezza<=167,1,

(Altezza>167 And Altezza<=175),2,

Altezza>175,3);

/\* qryPesoClassi \*/

UPDATE Studenti16 SET PesoCl = Switch(

Peso<=58,1,

(Peso>58 And Peso<=66),2,

Peso>66,3);

/\* opzionale calcolo BMI \*/

UPDATE Studenti16 SET Bmi =

round(Peso/((Altezza/100)^2),2);

UPDATE Studenti16 SET BmiCl = Switch(

Bmi < 15.5, 1,

(Bmi >= 15.50 AND Bmi < 17.50),2,

(Bmi >= 17.50 AND Bmi < 19.00),3,

(Bmi >= 19.00 AND Bmi < 22.00),4,

(Bmi >= 22.00 AND Bmi < 25.00),5,

(Bmi >= 25.00 AND Bmi < 30.00),6,

(Bmi >= 30.00 AND Bmi < 35.00),7,

(Bmi >= 35.00 AND Bmi < 40.00),8,

Bmi >= 40.00 ,9);

/\* qryCampiIncrociati tabella Pivot \*/

TRANSFORM Count(ID) AS ConteggioDiID

SELECT AltCl, Count(ID) AS TotaleDiID

FROM Studenti16

GROUP BY AltCl

PIVOT PesoCl;

/\* DDL in sql \*/

CREATE TABLE Studenti

(Uid INT UNIQUE NOT NULL PRIMARY KEY,

Cognome CHAR(30),

Nome CHAR(30));

CREATE TABLE PesoAlt

(Uid INT UNIQUE NOT NULL,

Peso INT,

Altezza INT,

PRIMARY KEY(Uid),

FOREIGN KEY(Uid) REFERENCES Studenti(Uid));

/\* alternativa al precedente \*/

CREATE TABLE Studenti

(Uid INT UNIQUE NOT NULL PRIMARY KEY,

Cognome CHAR(30),

Nome CHAR(30));

CREATE TABLE PesoAlt

(Uid INT UNIQUE NOT NULL PRIMARY KEY,

Peso INT,

Altezza INT);

ALTER TABLE PesoAlt

ADD CONSTRAINT Uid FOREIGN KEY(Uid)

REFERENCES Studenti(Uid);

/\*Access non ammette vincoli integrità referenziale in DDL SQL \*/

/\* Studenti 2 2759 studenti file Studenti2.txt \*/

/\* "n";"anno";"genere";"eta";"peso";"altezza";"dipsci";"dipcla";

"diptec";"dipalt";"componenti";"occhiali";"fumo";"diploma"

diploma 5 spazi più testo

Importare file testo nella tabella Studenti2

Verifica dei campi numerici

Chiave primaria n \*/

SELECT diploma,count(n) FROM Studenti2 GROUP BY diploma;

| **qryEsempi** | |
| --- | --- |
| **diploma** | **Expr1001** |
| alt | 211 |
| cla | 821 |
| sci | 637 |
| tec | 1090 |

SELECT

diploma,

count(n) AS frequenza,

round((count(n)/2759)\*100,2) AS percentuale

FROM Studenti2 GROUP BY diploma;

| **qryEsempi** | | |
| --- | --- | --- |
| **diploma** | **frequenza** | **percentuale** |
| alt | 211 | 7,65 |
| cla | 821 | 29,76 |
| sci | 637 | 23,09 |
| tec | 1090 | 39,51 |

/\* distribuzione univariata frequenze assolute e percentuali \*/

SELECT diploma2, count(n) AS frequenza,

(round(count(n)/(SELECT count(n) FROM Studenti2),3)\*100) AS percentuale

FROM Studenti2

GROUP BY diploma2;

| **qryEsempi** | | |
| --- | --- | --- |
| **diploma2** | **frequenza** | **percentuale** |
| alt | 211 | 7,6 |
| cla | 821 | 29,8 |
| sci | 637 | 23,1 |
| tec | 1090 | 39,5 |

/\* l’attributo diploma ha 5 spazi iniziali \*/

SELECT LEN(diploma) AS LunghezzaStringa

FROM Studenti2 WHERE n = 1;

| **qryEsempi** |
| --- |
| **LunghezzaStringa** |
| 8 |

/\* sbagliato \*/

SELECT \* FROM Studenti2 WHERE diploma='tec';

/\* corretto \*/

SELECT \* FROM Studenti2 WHERE diploma=' tec';

SELECT \* FROM Studenti2 WHERE diploma LIKE '\*tec';

SELECT n, diploma2 FROM Studenti2

WHERE diploma LIKE '\*tec' AND n<=20;

| **qryEsempi** | |
| --- | --- |
| **n** | **diploma2** |
| 1 | tec |
| 3 | tec |
| 5 | tec |
| 6 | tec |
| 12 | tec |
| 13 | tec |
| 15 | tec |
| 17 | tec |
| 18 | tec |

/\*

|  |  |  |  |
| --- | --- | --- | --- |
| Tipo di corrispondenza  operatore LIKE | Modello | Corrispondenza (viene restituito True) | Nessuna corrispondenza (viene restituito False) |
| Più caratteri | a\*a | aa, aBa, aBBBa | aBC |
|  | \*ab\* | abc, AABB, Xab | aZb, bac |
| Carattere speciale | a[\*]a | a\*a | aaa |
| Più caratteri | ab\* | abcdefg, abc | cab, aab |
| Carattere singolo | a?a | aaa, a3a, aBa | aBBBa |
| Cifra singola | a#a | a0a, a1a, a2a | aaa, a10a |
| Intervallo di caratteri | [a-z] | f, p, j | 2, & |
| All'esterno di un intervallo | [!a-z] | 9, &, % | b, a |
| Nessuna cifra | [!0-9] | A, a, &, ~ | 0, 1, 9 |
| Combinazione | a[!b-m]# | An9, az0, a99 | abc, aj0 |

\*/

ALTER TABLE Studenti2 ADD diploma2 CHAR(10);

SELECT

diploma,

RIGHT(diploma, 3) AS diploma2

FROM Studenti2;

UPDATE Studenti2

SET diploma2=RIGHT(diploma, 3) ;

/\* distribuzione dell’attributo diploma \*/

SELECT diploma2, count(diploma2) AS frequenza

FROM studenti2

GROUP BY diploma2;

/\* clausola HAVING solo su parte dell’attributo in GROUP BY \*/

SELECT diploma2, count(diploma2) AS frequenza

FROM studenti2

GROUP BY diploma2

HAVING diploma2 ='sci' OR diploma2='cla';

| **qryEsempi** |
| --- |
| **diploma2** |
| cla |
| sci |

/\* alternativa \*/

SELECT diploma2, count(diploma2) AS frequenza

FROM studenti2

GROUP BY diploma2

HAVING diploma2 IN('sci', 'cla')

/\* distribuzione bivariata diploma su righe e fuma su colonne \*/

TRANSFORM count(n)

SELECT diploma2 FROM studenti2

GROUP BY diploma2

PIVOT fumo;

| **qryEsempi** | | |
| --- | --- | --- |
| **diploma2** | **0** | **1** |
| alt | 162 | 49 |
| cla | 609 | 212 |
| sci | 472 | 165 |
| tec | 813 | 277 |

/\* selezione if \*/

SELECT IIf(fumo=0, 'non fuma', 'fuma') AS Fumatore

FROM Studenti2;

SELECT n, fumo, IIf(fumo=0, 'non fuma', 'fuma') AS Fumatore

FROM Studenti2 WHERE n<=5;

| **qryEsempi** | | |
| --- | --- | --- |
| **n** | **fumo** | **Fumatore** |
| 1 | 1 | fuma |
| 2 | 0 | non fuma |
| 3 | 0 | non fuma |
| 4 | 1 | fuma |
| 5 | 0 | non fuma |

/\* clausola BETWEEN \*/

SELECT \* FROM Studenti2 WHERE n BETWEEN 20 AND 30;

SELECT \* FROM Studenti2 WHERE n >=20 AND n <=30;

/\* clausola IN \*/

SELECT \* FROM Studenti2 WHERE n IN( 2,3,5,6,8,9);

| **qryEsempi** | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **n** | **anno** | **genere** | **eta** | **peso** | **altezza** | **dipsci** | **dipcla** | **diptec** | **dipalt** | **componenti** | **occhiali** | **fumo** | **diploma** | **diploma2** |
| 2 | 1988 | 0 | 20,2 | 75 | 180 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | sci | sci |
| 3 | 1988 | 0 | 20,3 | 60 | 173 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | tec | tec |
| 5 | 1988 | 0 | 21,4 | 66 | 164 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | tec | tec |
| 6 | 1988 | 0 | 25 | 84 | 186 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | tec | tec |
| 8 | 1988 | 0 | 20,6 | 89 | 170 | 0 | 1 | 0 | 0 | 3 | 1 | 0 | cla | cla |
| 9 | 1988 | 0 | 27,1 | 71 | 180 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | sci | sci |

/\* clausola GROUP BY \*/

SELECT diploma2,count(n)

FROM Studenti2

WHERE diploma2 IN('sci', 'cla')

GROUP BY diploma2;

| **qryEsempi** | |
| --- | --- |
| **diploma2** | **Expr1001** |
| cla | 821 |
| sci | 637 |

/\* proiezione su una selezione – frasi SELECT annidate \*/

SELECT n, fumo

FROM

(SELECT \*FROM studenti2 WHERE n<=5);

| **qryEsempi** | |
| --- | --- |
| **n** | **fumo** |
| 1 | 1 |
| 2 | 0 |
| 3 | 0 |
| 4 | 1 |
| 5 | 0 |

/\* calcolo della media media peso = 63,3805726712577 \*/

SELECT sum(peso)/

(SELECT count (peso) FROM Studenti2)

AS MediaPeso

FROM Studenti2;

| **qryEsempi** |
| --- |
| **MediaPeso** |
| 63,3805726712577 |

/\* verifica media peso = 63,3805726712577 \*/

SELECT round(avg(peso),4) AS MediaPeso FROM Studenti2;

/\* calcolo della varianza della popolazione – primo scarto dalla media > 65-63.38=1.62 \*/

SELECT (peso-(SELECT avg(peso) FROM Studenti2))

AS ScartiDallaMedia,

((peso-(SELECT avg(peso) FROM Studenti2))^2)

AS ScartiAlQuadrato FROM Studenti2;

| **qryEsempi** | |
| --- | --- |
| **ScartiDallaMedia** | **ScartiAlQuadrato** |
| 1,6194273287423 | 2,62254487307741 |
| 11,6194273287423 | 135,011091447923 |
| -3,3805726712577 | 11,4282715856544 |

/\* varianza peso = 133,642587421233 \*/

SELECT

sum((peso-(SELECT avg(peso) FROM Studenti2))^2)/

(SELECT count (peso) FROM Studenti2)

AS VarianzaPeso

FROM Studenti2;

| **qryEsempi** |
| --- |
| **VarianzaPeso** |
| 133,642587421233 |

/\* conferma varp=133,642587421232 /\*

SELECT varp (peso) AS VarPeso FROM Studenti2;

/\* funzione di covarianza \*/

SELECT

(peso-(SELECT avg(peso) FROM Studenti2)),

(altezza-(SELECT avg(altezza) FROM Studenti2)),

(peso-(SELECT avg(peso) FROM Studenti2))\*

(altezza-(SELECT avg(altezza) FROM Studenti2))

FROM Studenti2;

| **qryEsempi** | | |
| --- | --- | --- |
| **Expr1000** | **Expr1001** | **Expr1002** |
| 1,6194273287423 | 10,9880391446176 | 17,7943308800839 |
| 11,6194273287423 | 10,9880391446176 | 127,67472232626 |
| -3,3805726712577 | 3,9880391446176 | -13,4818561442002 |
| 29,6194273287423 | 17,9880391446176 | 532,795418230573 |

/\* covarianza = 73,3871116715654 \*/

SELECT

sum((peso-(SELECT avg(peso) FROM Studenti2))\*

(altezza-(SELECT avg(altezza) FROM Studenti2)))/

(SELECT count (peso) FROM Studenti2)

FROM Studenti2;

| **qryEsempi** |
| --- |
| **Expr1000** |
| 73,3871116715654 |

/\* correlazione = 0,770688473257721 \*/

SELECT

(sum((peso-(SELECT avg(peso) FROM Studenti2))\*

(altezza-(SELECT avg(altezza) FROM Studenti2)))/

(SELECT count (peso) FROM Studenti2))/

((SELECT stdevp(peso) FROM Studenti2)\*

(SELECT stdevp(altezza) FROM Studenti2))

FROM Studenti2;

| **qryEsempi** |
| --- |
| **Expr1000** |
| 0,770688473257721 |

/\* verifica VarPeso= 133,642587421 VarAltezza= 67,8479903195985 Cov= 73,3871116715654 \*/



SELECT

varp(peso) AS VarPeso,

varp(altezza)AS VarAlt

FROM Studenti2;

| **qryEsempi** | |
| --- | --- |
| **VarPeso** | **VarAlt** |
| 133,642587421232 | 67,8479903195985 |