**1.**

**a) Comando T-SQL para criação da base de dados NutrientsDB:**

**CREATE** **DATABASE** NutrientsDB **ON**

**PRIMARY** (

NAME='NutrientsDB\_Part1',

FILENAME='C:\Users\Public\NutrientsDB\_Part1.mdf',

**SIZE**=50MB,**MAXSIZE**=1GB,FILEGROWTH=5MB),

FILEGROUP NutrientsDB\_Part2 (

NAME='NutrientsDB\_Part2',

FILENAME ='C:\Users\Public\NutrientsDB\_Part2.ndf',

**SIZE** = 100MB,**MAXSIZE**=**UNLIMITED**,FILEGROWTH=50%), FILEGROUP NutrientsDB\_Part3 (

NAME='NutrientsDB\_Part3',

FILENAME ='C:\Users\Public\NutrientsDB\_Part3.ndf',

**SIZE** = 50MB,**MAXSIZE**=**UNLIMITED**,FILEGROWTH=50%)

**LOG** **ON** (

NAME = 'NutrientsDB\_Log',

FILENAME = 'C:\Users\Public\Nutrients\_Log.ldf',

**SIZE**=25MB,**MAXSIZE** = 250MB,FILEGROWTH = 50%);

**b) Comando T-SQL para criar a tabela Cheese :**

**USE** NutrientsDB;

**CREATE** **PARTITION** **FUNCTION** NutrientsDB\_PartitionRange (**int**)

**AS** **RANGE** **LEFT** **FOR** **VALUES** (50, 100);

**CREATE** **PARTITION** SCHEME NutrientsDB\_PartitionScheme

**AS** **PARTITION** NutrientsDB\_PartitionRange

**TO** ([**PRIMARY**], NutrientsDB\_Part2, NutrientsDB\_Part3);

**CREATE** **TABLE** Cheese (cheeseID **INT** **NOT** **NULL** **PRIMARY** **KEY**,

**Type** **varchar**(255),

Calories **INT** **NOT** **NULL**,

Proteins **INT** **NOT** **NULL**, Carbohidrates **INT** **NOT** **NULL**, Fat **INT** **NOT** **NULL**,) **ON** NutrientsDB\_PartitionScheme (cheeseID);

Carbohidrates **INT** **NOT** **NULL**,

Fat **INT** **NOT** **NULL**,)

**ON** NutrientsDB\_PartitionScheme (cheeseID);

**c) Comando T-SQL para criação de um índice sobre a nova coluna** CaloriesInCal **que corresponde aos valores da coluna** Calories **mas em calorias/100g , este índice está armazenado fisicamente no grupo de ficheiros primário . Este índice é NON-CLUSTERED pois a ordem dos registos no índice não corresponde à ordem dos registos na tabela.**

**USE** NutrientsDB;

**ALTER** **TABLE** Cheese **ADD** CaloriesInCal **INT** **NOT** **NULL**;

**GO**

**UPDATE** Cheese **SET** CaloriesInCal = (Calories/1000)

**WHERE** CaloriesInCal= 0

**GO**

**CREATE** **INDEX** calories\_index

**ON** Cheese(CaloriesInCal)

**INCLUDE** (Proteins, Fat)

**ON** [**PRIMARY**];