



VAK / GRAAD	Rekenaartoeëpassingstegnologie Graad 12																																																																																																																																	
KWARTAAL 1	Week 6																																																																																																																																	
ONDERWERP	Databasis: Berekeninge in verslae en navrae																																																																																																																																	
DOEL VAN LES	<p>Aan die einde van die les moet jy die volgende kan doen:</p> <ul style="list-style-type: none"> • Verslae – Berekeninge per groep • Navrae – Berekenende velde te kan gebruik <ul style="list-style-type: none"> – ‘n Opsommingsnavraag te kan skep • Datavalidering 																																																																																																																																	
BRONNE	Papier bronne	Digitale bronne																																																																																																																																
	<p><i>Gr. 12 DBE Practical Textbook: p. 164-198</i> <i>(Gebruik die skoolhandboek vir dieselfde inhoud)</i></p>	<p><i>Skakels op die WKED e-Portaal of die skakel: Data Lêers</i> <i>Die e-hulpbronne hier onder het die URL's na die webtuistes</i></p>																																																																																																																																
INLEIDING	In graad 11 het jy reeds kennis gemaak met navrae in die databasis. In die vorige les het jy kennis gemaak met verslae. In hierdie les gaan ons leer hoe om berekeninge in verslae en navrae te doen.																																																																																																																																	
KONSEPTE EN VAARDIGHEID	<p>Groepering in ‘n verslag: Maak die databasis Spec_Spes oop. Ons gaan gebruik maak van die Survey_Opname tabel. Ons gaan ‘n verslag skep en ‘n groepering doen volgens die Type veld. Die velde wat ons gaan gebruik is Type, ID, Protected, Population.</p> <table border="1"> <thead> <tr> <th>Type</th> <th>ID</th> <th>CName</th> <th>Status</th> <th>Protected</th> <th>SurveyDate</th> <th>Population</th> <th>Habitat</th> </tr> </thead> <tbody> <tr> <td>Bird</td> <td>BirAi56</td> <td>Bachman's sparrow</td> <td>SC</td> <td>Yes</td> <td>2012/02/14</td> <td>1922</td> <td>open longleaf pine forests, old fields [breeding season only]</td> </tr> <tr> <td>Bird</td> <td>BirHa57</td> <td>Bald eagle</td> <td>T</td> <td>Yes</td> <td>2012/12/31</td> <td>1121</td> <td>mature forests near large bodies of water (for nesting); lakes and</td> </tr> <tr> <td>Bird</td> <td>BirLa41</td> <td>Loggerhead shrike</td> <td>SC</td> <td>No</td> <td>2012/08/19</td> <td>1339</td> <td>fields and pastures [breeding season only]</td> </tr> <tr> <td>Bird</td> <td>BirPh76</td> <td>Double-crested cormorant</td> <td>SR</td> <td>Yes</td> <td>2014/05/16</td> <td>256</td> <td>lakes with scattered trees for nesting [breeding sites only]</td> </tr> <tr> <td>Bird</td> <td>BirPi33</td> <td>Red-cockaded woodpecker</td> <td>E</td> <td>No</td> <td>2013/12/06</td> <td>338</td> <td>mature open pine forests, mainly in longleaf pine [breeding evide</td> </tr> <tr> <td>Fish</td> <td>FisAm84</td> <td>Roanoke bass</td> <td>SR</td> <td>Yes</td> <td>2012/02/02</td> <td>1141</td> <td>large flowing streams and rivers with rocks, logs, roots, cover str</td> </tr> <tr> <td>Fish</td> <td>FisEt10</td> <td>Carolina darter - Eastern Piedmont population</td> <td>SC</td> <td>No</td> <td>2012/04/19</td> <td>1241</td> <td>slow-flowing shallow areas in rocky creeks and small rivers</td> </tr> <tr> <td>Fish</td> <td>FisMo32</td> <td>Carolina redbhorse</td> <td>T</td> <td>No</td> <td>2014/10/03</td> <td>278</td> <td>large rocky streams and rivers with gravel shoals</td> </tr> <tr> <td>Fish</td> <td>FisNo17</td> <td>Cape Fear shiner</td> <td>E</td> <td>No</td> <td>2013/05/31</td> <td>978</td> <td>large rocky streams and rivers with Podostemum and Justicia</td> </tr> <tr> <td>Insect</td> <td>InsCa67</td> <td>Carolina ladle crayfish</td> <td>SR</td> <td>Yes</td> <td>2012/08/19</td> <td>802</td> <td>small perennial streams and springs (endemic to North Carolina)</td> </tr> <tr> <td>Insect</td> <td>InsCh76</td> <td>A mayfly</td> <td>SR</td> <td>No</td> <td>2012/09/01</td> <td>411</td> <td>large flowing streams and rivers, sandy to rocky</td> </tr> <tr> <td>Insect</td> <td>InsGo22</td> <td>Rapids clubtail</td> <td>SR</td> <td>No</td> <td>2012/07/01</td> <td>1067</td> <td>large flowing streams and rivers with cobble and boulder</td> </tr> <tr> <td>Insect</td> <td>InsGo37</td> <td></td> <td>SR</td> <td>No</td> <td>2013/03/26</td> <td>1776</td> <td>large flowing streams and rivers with cobble and boulder</td> </tr> <tr> <td>Insect</td> <td>InsGo78</td> <td>Spine-crowned clubtail</td> <td>SR</td> <td>Yes</td> <td>2014/07/24</td> <td>1319</td> <td>large flowing streams and rivers, sandy to rocky</td> </tr> <tr> <td>Insect</td> <td>InsNe40</td> <td>Septima's clubtail</td> <td>SR</td> <td>No</td> <td>2013/04/12</td> <td>1692</td> <td>large flowing streams and rivers with cobble and boulder</td> </tr> </tbody> </table>	Type	ID	CName	Status	Protected	SurveyDate	Population	Habitat	Bird	BirAi56	Bachman's sparrow	SC	Yes	2012/02/14	1922	open longleaf pine forests, old fields [breeding season only]	Bird	BirHa57	Bald eagle	T	Yes	2012/12/31	1121	mature forests near large bodies of water (for nesting); 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Ons maak gebruik van die Report Wizard. Volg net die stappe.

The screenshots show the following steps in the Report Wizard:

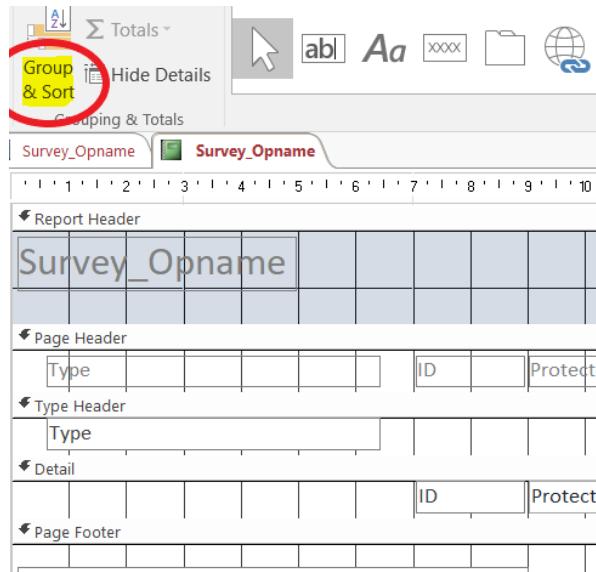
- Step 1:** "Which fields do you want on your report?" The user selects 'Status', 'SurveyDate', and 'Habitat' from the available fields and 'Type', 'ID', 'Protected', and 'Population' for the selected fields.
- Step 2:** "Do you want to add any grouping levels?" The user selects 'Type' as the grouping level.
- Step 3:** "What sort order and summary information do you want for detail records?" The user selects 'ID' for sorting in ascending order.

Kliek op **Finish** en die verslag word gegeneer.

Survey_Opname				
Type	ID	Protected		Populati
Bird	BirAi56	Yes		19
	BirHa57	Yes		11
	BirLa41	No		13
	BirPh76	Yes		2
	BirPi33	No		3
Fish	FisAm84	Yes		11
	FisEt10	No		12
	FisMo32	No		2
	FisNo17	No		9
Insect	InsCa67	Yes		8
	InsCh76	No		4
	InsGo22	No		10
	InsGo37	No		17
	InsGo78	Yes		13
	InsNe40	No		16

Ons wil weet wat die populasie van elke tipe spesie is. Ons gaan die berekening aan die onderkant van elke tipe spesie doen. Daarvoor het ons die **Group Footer** nodig. (Dit kan ook in die **Group Header** gedoen word.)

Gaan na **Design View** van die verslag en aktiveer die **Group Footer**.
 Klik op die **Group & Sort** ikoon.
 Onder aan die verslag sal nou die **Group, Sort and Total** verskyn.



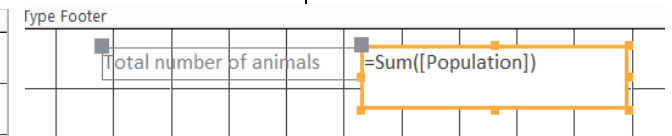
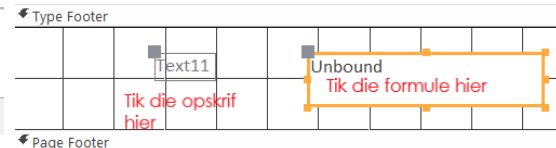
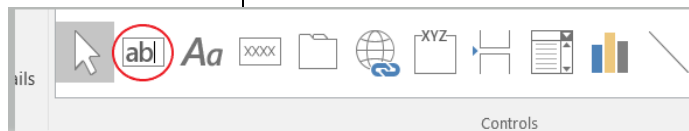
Klik op die **More**.
 Klik op die afpyltjie langs **without a footer section** en selekteer **with a footer section**.



Die **Type footer** verskyn en ons kan nou 'n formule daarin plaas om die berekening te doen.



Kliek op die **Text box** ikoon en plaas die **Text box** in die **Type Footer**. Access gaan nou die berekening doen op die rekords in die groep. Die plasing van die **Text box** ikoon is baie belangrik. Indien jy dit in die verslag se **Header** of **Footer** gaan plaas, gaan Access die berekening op al die rekords doen.



Survey_Opname

Type	ID	Protected	Population
Bird	BirAi56	<input type="checkbox"/>	1922
	BirHa57	<input type="checkbox"/>	1121
	BirLa41	<input type="checkbox"/>	1339
	BirPh76	<input type="checkbox"/>	256
	BirPi33	<input type="checkbox"/>	338
Total number of animals			4976
Fish	FisAm84	<input type="checkbox"/>	1141
	FisEt10	<input type="checkbox"/>	1241

Navrae:

Die navraagfunksie help die gebruiker om spesifieke rekords vir 'n spesifieke veld of resultaat te verkry. Een van die maniere waarop dit bereik word, is deur gebruik te maak van berekende velde sowel as operatore om die data te filter. Dit verhoog nie net die akkuraatheid van die navraag nie, maar laat ook die gebruiker toe om verslae wat baie meer spesifiek is te genereer.

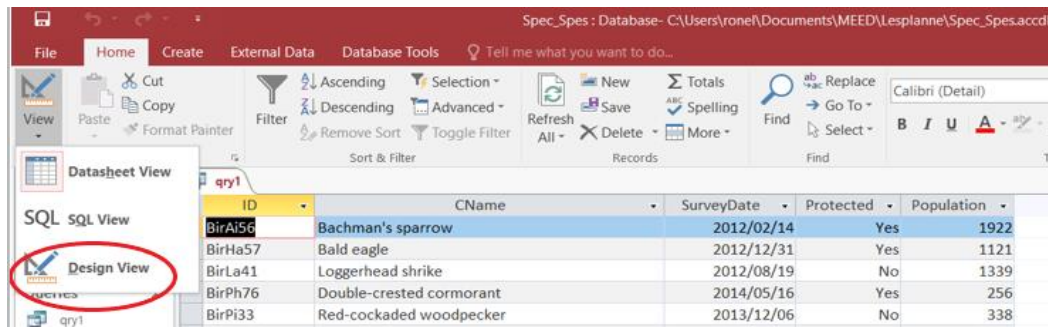
‘n Verskeidenheid van operatore kan in ‘n navraag gebruik word om kriteria te skep om spesifieke data van ‘n databasis (Tabel) te onttrek. (>; <; >=; <=; =; <>; AND; NOT; BETWEEN en LIKE).

“Wildcards” is karakters wat ons kan gebruik as ons slegs ‘n gedeelte van die teks ken wat ons soek. ‘n Vraagteken(?) verteenwoordig een karakter en ‘n sterretjie(*) verteenwoordig baie karakters.

Maak die databasis **Spec_Spes** oop. Ons gaan gebruik maak van die navrae **qr1** en **qr2**.

1. Navrae met ‘n berekende veld.

Maak die navraag **qr1** oop en gaan na Design View.



Ons gaan die populasie (**Population**) met 10% laat groei vir al die spesies wat beskerm word en waarvan die opnamedatum (**SurveyDate**) tussen 1 Januarie 2013 en 31 Desember 2014 was. Ons gaan die formule ook afrond.

Field:	ID	CName	SurveyDate	Protected	Population
Table:	Survey_Opname	Survey_Opname	Survey_Opname	Survey_Opname	Survey_Opname
Sort:			Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			Between #2013/01/01# And #2014/12/31#	Yes	
or:					
			Die begin-en einddatum	Beskermdes spesie	

KAN JY:

‘n Navraag skep met ‘n berekende veld.

‘n Opsommende navraag skep met **Totals**.

Ons begin die formule met **=round(((Population]*1.1),0)**.

Expr1: sal outomaties as veldnaam verskyn. Ons kan dit net vervang met ons opskrif **PopulationGrowth**.

SurveyDate	Protected	Population	Expr1: Round(((Population]*1,1),0)
Survey_Opname	Survey_Opname	Survey_Opname	
Ascending			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Between #2013/01/01# And #2014/12/31#	Yes		

	<u>PopulationGrowth</u> : Round(((Population]*1,1),0)
name	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

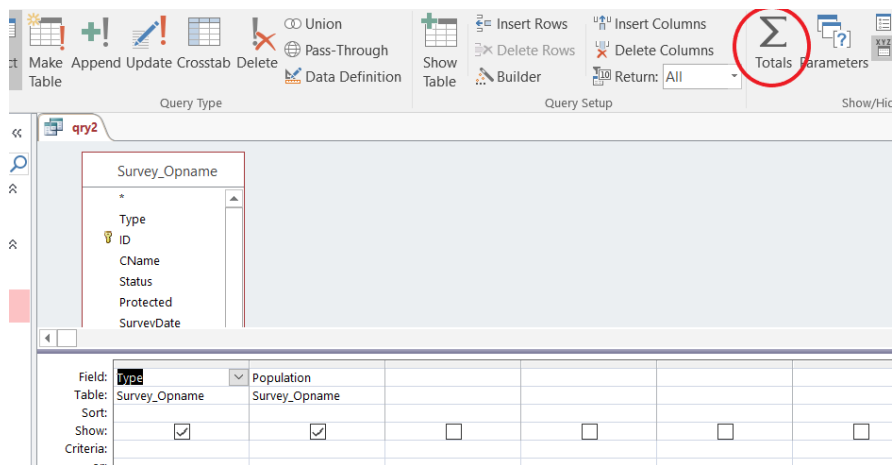
Ons berekende navraag is voltooi.

ID	CName	SurveyDate	Protected	Population	PopulationGrowth
PlaPt92	Harperella	2013/05/24	Yes	738	812
PlaCo38	Piedmont horsebalm	2013/06/25	Yes	668	735
MolSt82	Creepers	2013/07/09	Yes	254	279
PlaSc46	Veined skullcap	2013/08/16	Yes	1370	1507
PlaTh55	Appalachian golden-banner	2013/09/13	Yes	30	33
PlaLi27	Bog spicebush	2014/03/17	Yes	1601	1761
PlaIs17	Viginia quillwort	2014/05/02	Yes	7	8
BirPh76	Double-crested cormorant	2014/05/16	Yes	256	282
InsGo78	Spine-crowned clubtail	2014/07/24	Yes	1319	1451
PlaBa33	Thin-pod white wild indigo	2014/10/02	Yes	969	1066

2. Opsommende Navraag

Maak die navraag **qr2** oop en gaan na **Design View**.

Ons wil bepaal hoeveel van elke soort spesie daar is. Totale aantal voëls (**Birds**), visse (**Fish**), insekte (**Insects**), ens. Klik op die **Totals** ikoon.



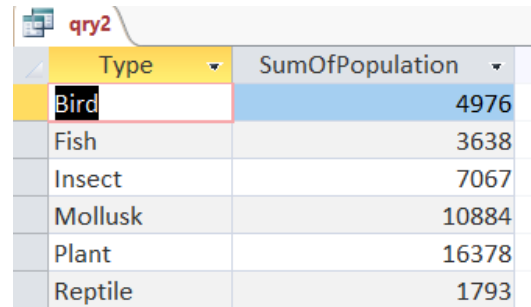
Die volgende verskyn:

Field:	Type	Population
Table:	Survey_Opname	Survey_Opname
Total:	<u>Group By</u>	<u>Group By</u>
Sort:		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		

Ons wil groepeer volgens **Type** en die **Population** bymekaar tel. Ons gaan dus **Sum** gebruik.

Field:	Type	Population
Table:	Survey_Opname	Survey_Opname
Total:	Group By	Group By
Sort:		Group By
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

As ons nou die **Datasheet View** gaan het ons die opsomming.



Type	SumOfPopulation
Bird	4976
Fish	3638
Insect	7067
Mollusk	10884
Plant	16378
Reptile	1793

Tegniese om die geldigheid van data te toets:

Hier is 'n paar tegnieke wat jy reeds geleer het:

- 'n Datasoort aan 'n veld toe te ken. (bv **Number**, **Text**, ens.)
- Deur veldgroottes in te stel. (**Field size**)
- Invoermaskers op te stel. (**Input mask**)
- Om 'n verstekwaarde te stel. (**Default**)
- Om 'n geldigheidsreël in te stel in 'n tabel. (**Field Validation Rule** en **Field Validation Text**)
- Gebruik die **Lookup Wizard** om een van die volgende skep:
 - Combo Box
 - List Box.

Ander tegnieke is:

- **Record Validation Rule.** Laat jou 'n reël spesifiseer waaraan alle rekords moet voldoen.
- **Validation Rule** in 'n vorm. Laat jou toe om 'n geldigheidsreël toe te pas op 'n kontrole soos 'n **Text Box**. Dit beperk data op dieselfde manier as 'n **Field Validation Rule**.

Record Validation Rule:

Maak die tabel in die databasis **Spec_Spes** oop. Ons gaan die veld **SurveyDate** beperk dat dit nie na die **CurrentDate** kan wees nie. Selekteer die kolom **SurveyDate** en klik op die **Fields** oortjie (**Tab**).

KAN JY...

die verskillende geldigheidsreëls in 'n tabel toepas?

'n geldigheidsreël skep vir 'n rekord?

'n geldigheidsreël skep in 'n vorm?

Type	ID	CName	Status	Protected	SurveyDate	CurrentDate
Bird	BirAi56	Bachman's sparrow	SC	Yes	2012/02/14	2021/02/14
Bird	BirHa57	Bald eagle	T	Yes	2012/12/31	2021/02/14

Kliek dan op **Validation**. Ons gaan 'n **Validation Rule** met behulp van 'n uitdrukking opstel.

Field Validation Rule

Create an expression that restricts the values that can be entered in the field.

Field Validation Message

Set the error message for the Field Validation Rule.

Status	Protected	SurveyDate
SC	Yes	2012/02/14
T	Yes	2012/12/31
SC	No	2012/08/19
SR	Yes	2014/05/16
E	No	2013/12/06
SR	Yes	2012/02/02
tion SC	No	2012/04/19
T	No	2014/10/03
F	No	2013/05/31

Die **Expression Builder** word oopgemaak en ons tik die formule in.

Expression Builder

Enter an expression to **validate** the data in this field:
 (Examples of expressions include [field1] + [field2] and [field1] < 5)

[SurveyDate]<[CurrentDate]

OK
 Cancel
 Help
 << Less

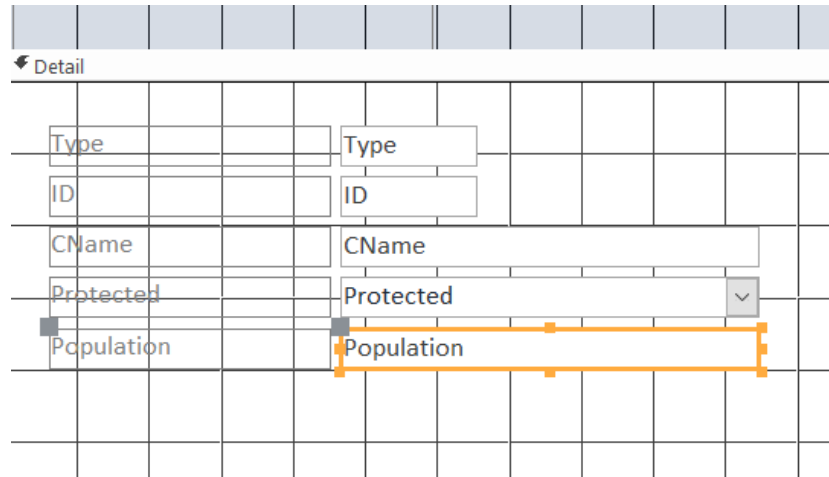
Expression Elements	Expression Categories	Expression Values
Survey_Opname	Type	<Value>
Functions	ID	
Constants	CName	
Operators	Status	
	Protected	
	SurveyDate	
	CurrentDate	

Validation Rule in 'n vorm:

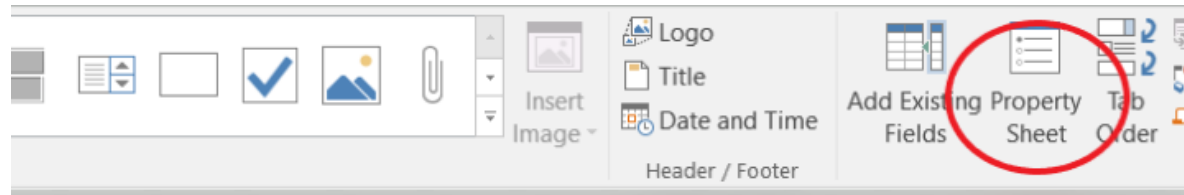
Maak die vorm **Frm** oop en gaan na **Design view**. Ons gaan 'n geldigheidsreël toepas op die **Population**.

Geen waarde kleiner as 1 mag ingevul word nie.

Kliek op die **Population** veld.



Kliek op **Property Sheet**.



Tik nou die geldigheidsreël en –teks in.

Property Sheet

Selection type: Text Box

Population

Format Data Event Other All

Control Source	Population
Text Format	Plain Text
Input Mask	
Default Value	
Validation Rule	> 1
Validation Text	No value smaller than one.
Filter Lookup	Database Default
Enabled	Yes
Locked	No

**AKTIWITEITE/
ASSESSERING**

Aktiwiteit : (DBE/Feb.–Mrt. 2017)

Maak die databasis **5DAM** oop.

1.1 Maak die qry5_2-navraag oop.

- Voeg die **Town**-veld en **Capacity**-veld by.
- Voeg kriteria by om die name, provinsies en dorpe van al die damme in Limpopo en Noordwes (**North West**) waarvan die kapasiteit meer as 50000 is, te vertoon.

Stoor en maak die **qry5_2**-navraag toe.

1.2 Skep 'n navraag met die naam **qry5_3** wat op die Dam-tabel gebaseer is om soos hieronder te lyk.

LET WEL:

- Die **Avg Of Capacity**-veld gebruik die **Capacity**-veld.
- Slegs die data vir Vrystaat (**Free State**) en Noordwes (**North West**) moet verskyn.

Province	Avg Of Capacity
Free State	826914
North West	109436

Stoor en maak die **qry5_3**-navraag toe.

1.3 Maak die **qry5_4**-navraag oop.

Vertoon slegs die name en dorpe van die damme wat data het vir die oppervlak (**Surface**) en wat tussen 1 Januarie 1990 en 31 Desember 2000 (insluitend) voltooi is.

Stoor en maak die **qry5_4**-navraag toe.

1.4 Maak die **qry5_5**-navraag oop.

- Skep en vertoon 'n berekende veld met die naam **Volume** om die volume water wat tans in elke dam is, te bereken.
- Die berekening vir die volume van die dam is $\text{Surface} * \text{Height} * 0.3$.
- Formateer hierdie veld om EEN desimale plek te vertoon.

Stoor en maak die **qry5_5**-navraag toe.

	<p>1.5 Maak die frm5_6-vorm oop.</p> <ul style="list-style-type: none"> • Voeg 'n hiperskakel ('hyperlink') soos volg in: <ul style="list-style-type: none"> ○ Plaas die hiperskakel langs die Province-etiket ('label') op die vorm. ○ Die hiperskakel koppel aan die Province-tabel in hierdie databasis. <p>WENK: Die hiperskakel is een van die kontroles (controls) op die Design-oortjie.</p> <ul style="list-style-type: none"> • Voeg 'n valideringsreël in wat sal bepaal dat die kapasiteit nie minder as 50 kan wees nie. Gee ook 'n toepaslike valideringstekst. <p>Stoor en maak die frm5_6-vorm toe.</p> <p>1.6 Maak die rpt5_7-verslag wat op die Dam-tabel gebaseer is, oop.</p> <ul style="list-style-type: none"> • Verwyder die Illustration-etiket ('label') EN die veld. • Groepeer die verslag volgens die Province-veld en sorteer dit op die Town-veld. • Gebruik 'n funksie om te bepaal hoeveel damme daar in elke provinsie is. • Gebruik 'n funksie om te bepaal wat die gemiddelde kapasiteit van die damme in elke provinsie is. Rond die antwoord af tot die naaste heelgetal. • Gebruik 'n funksie om die grootste kapasiteit (Capacity) van al die damme in die verslag te bepaal. <p>Stoor en maak die rpt5_7-verslag toe.</p>
KONSOLIDASIE	<i>Jy behoort nou deur middel van die outomatiese, wizard metode, en die ontwerp metode verslae (Reports) in Microsoft Access te kan bemeester.</i>
WAARDES	<i>Akkurate gebruik van formules aan te wakker. Probleemoplossingstegnieke te gebruik. Analitiese en logiese denke te bevorder.</i>
E-BRONNE	Data Lêers: https://wcedportal.co.za/eresource/192356 DBE Digitale handboek (Engels): https://wcedportal.co.za/eresource/88106