# P10. Version Control with Git for the DBA

We need some basic experience in the transversal skill referring to version control in order to be a complete DBAs, for this here you have this task splitted in two parts. The first part is related to a web project that can be connected with a database and the second part is related to a backup of some commits of some databases located on a server.

#### Part A

You will need to document each of the steps proposed below. The document must be in a professional format as is usual. All steps should be done using the **Git command line** and using a graphical interface (**GUI**), so it is recommended to create two independent projects (repososity) for example, mfernandezCL (for the command line) and mfernandezGUI (for the graphical interface). Please consider revise the git and github official documentation.

#### **GUIDE**

(\*) Create a working directory named 'AppConnectedToDB' in the user directory.



(\*) Initializes the empty repository.

```
apere@Albert MINGW64 ~/Desktop

$ cd AppConecte*
bash: cd: AppConecte*: No such file or directory

apere@Albert MINGW64 ~/Desktop

$ cd AppConn*

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB

$ git init
Initialized empty Git repository in C:/Users/apere/Desktop/AppConnectedToDB/.git

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)

$ |
```

(\*) Create the index.html file



<![endif]-->

(\*) Add this basic structure:

```
<!DOCTYPE HTML>
<html>
<head>
</head>
<body>
</body>
```

</html>
index.html: Bloc de notas

Archivo Edición Formato Ver Ayuda

k!DOCTYPE HTML>
<html>
<head>
</head>
<body>
</body>
</html>

(\*) Create a commit indicating the basic skeleton of the index.html previously created.

```
apere@Albert MINGw64 ~/Desktop/AppConnectedToDB (master)

§ git commit -m "estructura html"
[master (root-commit) c51b7cc] estructura html

1 file changed, 7 insertions(+)

create mode 100644 index.html.txt
```

(\*) Add content to the head, including <head> and </head>.
<meta charset="UTF-8" />
<title></title>
link rel="stylesheet" type="text/css" href="style.css" />
<!--[if IE]>
<script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>

```
index.html: Bloc de notas
                                                                                          Archivo Edición Formato Ver Ayuda
<!DOCTYPE HTML>
<html>
<head>
         <meta charset="UTF-8" />
         <title></title>
         <link rel="stylesheet" type="text/css" href="style.css" />
         <!--[if IE]>
         <script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>
         <![endif]-->
</head>
<body>
</body>
</html>
(*) Create a commit indicating that the index.html header is added
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git commit -m "head afegit"
[master c4d29ae] head afegit
 1 file changed, 6 insertions(+)
(*) Add the content to the body, including <body> and </body>
<header>
<h1>InitialApply Blog</h1>
</header>
<aside>
>
</aside>
<section>
</section>
<footer>
© 2020 - designed by <a href="http://www.lnitialsurname.org" title="Blog of Initial"
Surname">Initialsurname</a>
</footer>
*index.html: Bloc de notas
Archivo Edición Formato Ver Ayuda
<!DOCTYPE HTML>
<html>
<head>
      <meta charset="UTF-8" />
      <title></title>
      k rel="stylesheet" type="text/css" href="style.css" />
      <!--[if IE]>
<script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>
      <![endif]-->
</head>
<body>
      <header> kh1>InitialApply Blog</h1>
      </header>
      <aside>
            >
      </aside>
      <section>
            < 2020 - designed by <a href="http://www.Initialsurname.org" title="Blog of Initial Surname">Initialsurname</a>
      </footer>
</body>
```

(\*) Create a commit indicating that the basic structure of the body is added.

```
pere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
 git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git commit -m "body afegit"
[master d4d3631] body afegit
1 file changed, 12 insertions(+)
(*) Add section content, between <section> and </section>
<article>
<header>
<h2>Post 3</h2>
</header>
Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor
incididunt ut labore et
dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco
laboris nisi ut aliquip ex ea commodo conseguat. Duis
aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla
pariatur. Excepteur sint occaecat cupidatat non
proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
</article>
<article>
<header>
<h2>Post 2</h2>
</header>
Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor
incididunt ut labore et
dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco
laboris nisi ut aliquip ex ea commodo conseguat. Duis
aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla
pariatur. Excepteur sint occaecat cupidatat non
proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
</article>
<article>
<header>
<h2>Post 1</h2>
</header>
Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor
incididunt ut labore et
dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco
laboris nisi ut aliquip ex ea commodo conseguat. Duis
```

aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla

proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

pariatur. Excepteur sint occaecat cupidatat non

</article>

```
*index.html: Bloc de notas
Archivo Edición Formato Ver Ayuda
<head>
        <meta charset="UTF-8" />
        <title></fitle><
link rel="stylesheet" type="text/css" href="style.css" />
<!--[if IE]>
         <script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>
        <![endif]-->
</head>
<body>
        <header>
                 <h1>InitialApply Blog</h1>
        </header>
        <aside>
        </aside>
        <section>
                 .,
≺article>
                         <header>
                                  <h2>Post 3</h2>
                         </header>
                 Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna
</article>
                </article,
<article>
<header>
<h2>Post 2</h2>
                         Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna
                 </article>
                 <article>

<header>
<h2>Post 1</h2>

kp>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna
                 </article>
        </section>
                 ,
© 2020 - designed by <a href="http://www.Initialsurname.org" title="Blog of Initial Surname">Initialsurname</a>
        </footer>
</body>
```

(\*) Create a commit indicating that the entire structure of the post zone is added.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git commit -m "section afegit"
[master df49f45] section afegit
1 file changed, 19 insertions(+)
```

(\*) Create a style.css.



```
(*) Add the following information.
/*La esperanza de vida de este comentario es corta*/
.html {
}
body {
margin: 0;
padding: 0;
width: 940px;
margin: 0 car;
font: 10pt/1.5em Helvetica,"Helvetica neue", Arial, sans-serif;
 *style.css: Bloc de notas
Archivo Edición Formato Ver Ayuda
/*La esperanza de vida de este comentario es corta*/
.html {
body {
margin: 0;
padding: 0;
width: 940px;
margin: 0 car;
font: 10pt/1.5em Helvetica, "Helvetica neue", Arial, sans-serif;
(*) Create a commit indicating that the html and body CSS are added.
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master) $ git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git commit -m "estructura css"
[master e8bd406] estructura css
1 file changed, 10 insertions(+)
create mode 100644 style.css.txt
```

```
(*) Add the following information.
header, section, article, aside, footer {
display: block;
}
aside {
float: left:
width: 470px;
min-height: 480px;
background:
url(logo.png)
center top norepeat;
margin: 0 0 20px 0;
 *style.css: Bloc de notas
 Archivo Edición Formato Ver Ayuda
 /*La esperanza de vida de este comentario es corta*/
 .html {
 body {
 margin: 0;
 padding: 0;
 width: 940px;
 margin: 0 car;
 font: 10pt/1.5em Helvetica, "Helvetica neue", Arial, sans-serif;
 header, section, article, aside, footer {
 display: block;
 aside {
 float: left;
 width: 470px;
 min-height: 480px;
 background:
 url(logo.png)
 center top norepeat;
 margin: 0 0 20px 0;
(*) Create a commit indicating that CSS of several HTML5 elements are added: header,
section, article, aside, and footer.
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git commit -m "header, section, article, aside i footer afegits"
[master 94fb093] header, section, article, aside i footer afegits
1 file changed, 12 insertions(+)
```

(\*) Add to the project root directory the logo that will appear in the left sidebar: logo.png



(\*) Create a commit indicating that the InitialApellido logo is added.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
  git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)

$ git commit -m "Perelló logo afegit"

[master 55eba31] Perell¦| logo afegit

1 file changed, 0 insertions(+), 0 deletions(-)

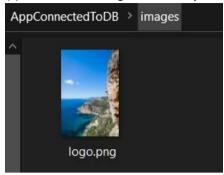
create mode 100644 logo.png.JPG
(*) Add the following information.
section {
float: right;
width: 428px;
padding-left: 20px;
margin: 0 0 20px 0px;
border-left: 1px dotted #000;
}
section h2 {
font: 14pt Helvetica,"Helvetica neue", Arial, sans-serif;
font-weight: lighter;
text-transform: uppercase;
color: #493831;
padding-bottom: 10px;
margin: 0;
}
```

```
padding: 10px;
color:#200f08;
border-top: 1px dotted #000;
background:#fff;
}
 *style.css: Bloc de notas
Archivo Edición Formato Ver Ayuda
padding-bottom: 10px;
margin: 0;
footer {
clear:both !important;
width:940px;
height: 100px;
padding: 10px;
color:#200f08;
border-top: 1px dotted #000;
background:#fff;
(*) Create a commit indicating that the footer CSS is added.
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git commit -m "footer afegit"
[master 1d6bdff] footer afegit
1 file changed, 31 insertions(+)
(*) Add the following information.
h1 {
font: 32pt Helvetica,"Helvetica neue", Arial, sans-serif;
text-align: center;
text-transform: uppercase;
color: #000;
padding-top: 30px;
text-shadow: 1px 1px 2px #fff;
a:link, a:visited {
font:10pt normal Helvetica,"Helvetica neue", Arial, sans-serif;
color:#d2543c:
text-decoration:none;
border-bottom: 1px solid #d2543c;
a:hover {
border-bottom:1px dotted #d2543c;
a img {
border:none;
}
```

```
style.css: Bloc de notas
 Archivo Edición Formato Ver Ayuda
background:#fff;
}
h1 {
font: 32pt Helvetica, "Helvetica neue", Arial, sans-serif;
text-align: center;
text-transform: uppercase;
color: #000;
padding-top: 30px;
text-shadow: 1px 1px 2px #fff;
}
a:link, a:visited {
font:10pt normal Helvetica, "Helvetica neue", Arial, sans-serif;
color:#d2543c;
text-decoration none.
(*) Create a commit indicating that the H1 and binding CSS are added.
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
§ git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git commit -m "h1 i binding afegit"
[master f213f3c] h1 i binding afegit
1 file changed, 23 insertions(+)
(*) Create a v1.0 tag.
                      ~/Desktop/AppConnectedToDB (master)
$ git tag v1.0
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
commit f213f3ce46b83990b179b88df6bd1933dcffd059 (HEAD -> master, tag: v1.0)
Author: aperellop <aperellop@cifpfbmoll.eu>
        Wed Apr 21 19:18:49 2021 +0200
    h1 i binding afegit
commit 1d6bdff729b3d8daf7b34e88fc52920d8af4b2fd
Author: aperellop <aperellop@cifpfbmoll.eu>
        Wed Apr 21 19:16:36 2021 +0200
Date:
    footer afegit
(*) Create a "development" branch. In this development branch we will perform several
tasks:
                       ~/Desktop/AppConnectedToDB (master)
$ git branch development
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git branch
 development
 master
```

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)

\$ git checkout development Switched to branch 'development' (\*) Create an images directory and move the logo.png and move there.



margin: 0 0 20px 0;

(\*) Create a commit indicating that the logo is moved to the images folder.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ git add .

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ git commit -m "directori images"
[development 78e7e63] directori images
1 file changed, 0 insertions(+), 0 deletions(-)
rename logo.png.JPG => images/logo.png.JPG (100%)
```

(\*) Create a CSS directory and move the CSS.css style there.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ mkdir CSS
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ mv style.css CSS/
```

(\*) Create a commit indicating that the CSS is moved to the CSS folder.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (de
velopment)
$ git add .

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ git commit -m "moure CSS"
[development dc5c61f] moure CSS
2 files changed, 0 insertions(+), 0 deletions(-)
rename style.css.txt => CSS/style.css (100%)
rename index.html.txt => index.html (100%)
```

(\*) Change references to the CSS in the index.htm logo and logo.png in the CSS.

```
<!DOCTYPE HTML>
<html>
<head>

<meta charset="UTF-8" />
<title></title>

| link rel="stylesheet" type="text/css" href="CSS/style.css" /|
| url(../images/logo.png)
| center top norepeat;
```

(\*) Create a commit indicating that references to CSS and images are changed when rearranged into directories.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ git add .
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ git commit -m "canvi referencies html css"
[development Of61b83] canvi referencies html css
3 files changed, 2 insertions(+), 2 deletions(-)
rename images/{logo.png.JPG => logo.png} (100%)
(*) Create a "bugfix" branch from the "master" to resolve a series of bugs:
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ git branch
 development
 master
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (development)
$ git checkout master
Switched to branch 'master'
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git branch bugfix
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git branch
  bugfix
  development
 master
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git checkout bugfix
Switched to branch 'bugfix'
```

(\*) Remove comments in the CSS from the two dotted ones (start with //border ).

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)

(\*) Create a commit indicating that they enter the dotted ones in the right bar and footer.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git add .

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git commit -m "comentari css esborrat"
[bugfix 0435e31] comentari css esborrat
2 files changed, 1 deletion(-)
rename index.html.txt => index.html (100%)
rename style.css.txt => style.css (95%)
```

.html {

(\*) Enter the title "InitialSurname".

(\*) Create a commit indicating that the title is entered on the page.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git add .

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git commit -m "titol afegit"
[bugfix 8934e33] titol afegit
1 file changed, 1 insertion(+), 1 deletion(-)
```

(\*) Change 2020 to 2021 in the footer. Remove (c).

(\*) Create a commit indicating that small adjustments are made to the footer.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git add .

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git commit -m "footer modificat"
On branch bugfix
nothing to commit, working tree clean
```

(\*) Create a v1.1 tag.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git tag v1.1

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git log
commit 8934e3389766a7208191b0b9051b2846066ec9bb (HEAD -> bugfix, tag: v1.1)
Author: aperellop <aperellop@cifpfbmoll.eu>
Date: Thu Apr 22 20:03:13 2021 +0200

    titol afegit
commit 0435e31b76550ff5357a952ab2b7d7dc5e8c9d62
```

(\*) Take these changes to the "master" branch.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (bugfix)
$ git checkout master
Switched to branch 'master'

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git merge bugfix
Updating f213f3c..8934e33
Fast-forward
index.html.txt => index.html | 2 +-
style.css.txt => style.css | 1 -
2 files changed, 1 insertion(+), 2 deletions(-)
rename index.html.txt => index.html (98%)
rename style.css.txt => style.css (95%)
```

(\*) Delete the "bugfix" branch.

```
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git branch -d bugfix
Deleted branch bugfix (was 8934e33).

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)
$ git branch
development
* master
```

(\*) Bring changes from the "development" branch to the "master" branch. Resolve conflicts, if any.

```
/Desktop/AppConnectedToDB (master)
$ git merge development
CONFLICT (rename/rename): Rename "style.css.txt"->"style.css" in branch "HEAD" rename "style.css.txt"
>"CSS/style.css" in "development"
Auto-merging style.css and CSS/style.css, both renamed from style.css.txt
Auto-merging index.html
CONFLICT (content): Merge conflict in index.html
Automatic merge failed; fix conflicts and then commit the result.
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master|MERGING)
$ git diff
diff --cc index.html
index 73bc0ea,daaafa2..0000000
--- a/index.html
+++ b/index.html
  00 −2,8 −2,8 +2,13 000
<html>
   <head>
           <meta charset="UTF-8" />
                               64 ~/Desktop/AppConnectedToDB (master)
$ git merge development
CONFLICT (rename/rename): Rename "style.css.txt"->"style.css" in branch "HEAD" ename "style.css.txt"->"CSS/style.css" in "development"
Auto-merging style.css and CSS/style.css, both renamed from style.css.txt
Auto-merging index.html
CONFLICT (content): Merge conflict in index.html
Automatic merge failed; fix conflicts and then commit the result.
apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master|MERGING)
$ git add .
apere@Albert MINGW64 ~/Desktop,
$ git commit -m "html arreglat'
[master 3c49e91] html arreglat
                              /64 ~/Desktop/AppConnectedToDB (master|MERGING)
```

(\*) Git can be integrated into VS Code? Describe the steps to do it.

apere@Albert MINGW64 ~/Desktop/AppConnectedToDB (master)

Yes using the git config –global core.editor

'C:\Users\aperellop\AppData\Local\Programs\Microsoft VS Code\Code.exe -n -w" comand.

### Part B

At this point you should use what you have learned regarding version control and the mysqldump tool, which as you know its main use is to make backup copies of all the elements of one or more databases in SQL format (.sql text file).

#### **GUIDE**

You should follow the indications bellow:

1. Make a backup copy of **all the databases** on your server, please note that the **docker settings** must be OK.

```
MariaDB [(none)]> show databases;
  Database
  EMPLOYEESDBNORMAL
  P04_queries01
   P04_views
   P09
   P09 2
   SQL1NORMALDATES
   SQL1NORMALSTRINGS
  SQL1NORMALTRANSACTIONS
   TENNIS
   TENNIS2
   information schema
   league
   mysql
  performance schema
  world x
15 rows in set (0.027 sec)
         aperellop-ubuntu:~$ sudo docker exec -it some-mariadb /bin/bash
root@5578f83a199e:/# ls
bin dev etc lib lib64 media mnt proc run srv <mark>tmp</mark> var
boot docker-entrypoint-initdb.d home lib32 libx32 midir opt root sbin sys usr
root@5578f83a199e:/# cd midir
root@5578f83a199e:/midir# mysqldump --user=root --password --lock-tables --all-databases > /midir/alldatabases.sql
Enter password:
root@5578f83a199e:/midir#
root@5578f83a199e:/midir# ls
alldatabases.sql
```

- 2. Make the git and github configurations that you consider necessary.
- 3. Using the different git commands you need to do several commits (as we did in UDACITY course).
- 4. Upload the N dumped databases to the N public repositories (so that there are no naming problems, put your first initial and last name in each repo).
  For example, the TENNIS database in the mfernandezTENNIS repository or the UNIVERSITY database in the mfernandezUNIVERSITY repository.

- 5. Make at least 5 modifications to those databases, dump them again and upload (do a push) them to the repositories.
- 6. Make several captures and document it from the different interfaces of the commits involved in the whole process.
- 7. Finally, from the different interfaces, it takes a tour of the different repositories.
- 8. Write some conclusions about this process.

## Indications for the activity submission

Take in mind that you must:

- Use the corresponding task of our classroom to do the submission.
- Formatting: PDF.
- A link or links to your github repositories used in this task in order to revise its content.
- File name: GDB (P10) YourSurname1 YourSurname2 YourName
- Recommended extension: 7-15 pages.
- Typography and font size: Arial 11.