

This document presents the results from the tests made to the developed apps.

The goal of this project was to accomplish a Go application that was able to collect CPU and RAM usage each second and store it in a local database, create a simulator of an external device generating (each second) a sample composed by four variables and store them in a local database, and, finally, to provide an interface between the user and the samples data through the console allowing multiple processing from that data.

To allow the coexistence between the database continuous fill, and, at the same time, its interaction, it was created two separated apps: DataCollector.exe and Interface.exe.

Therefore, the tests presented in this document are divided by:

- 1- Database periodic actualization
- 2- Interaction between the Interface and the database

#### 1. Database periodic actualization

In the Figure 1 and 2, it is possible to see, for different time moments, the update of table “OScollector” (CPU and RAM usage) as well as in Figure 3 and 4 for table “ExtDevice” for the same time difference, using DB Browse program.

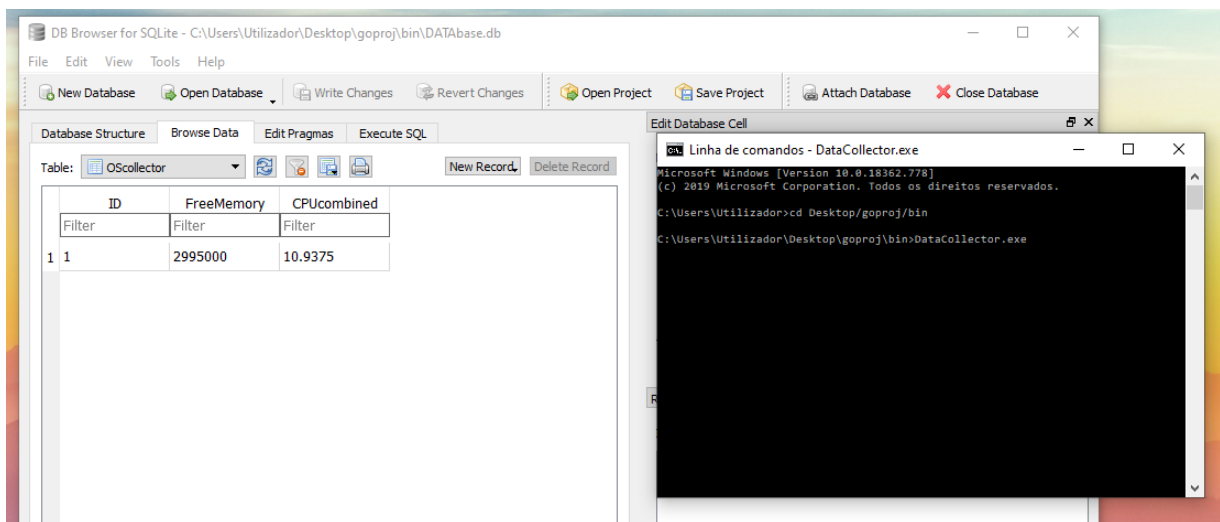


Figure 1- left: database entries, right: program executing

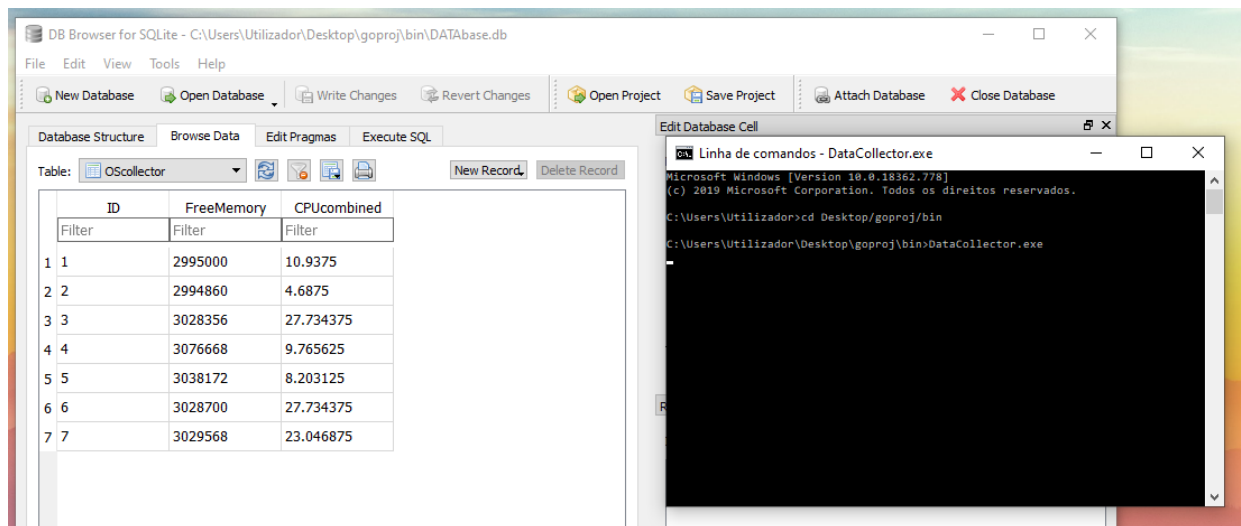


Figure 4 - left: database new entries, right: program executing

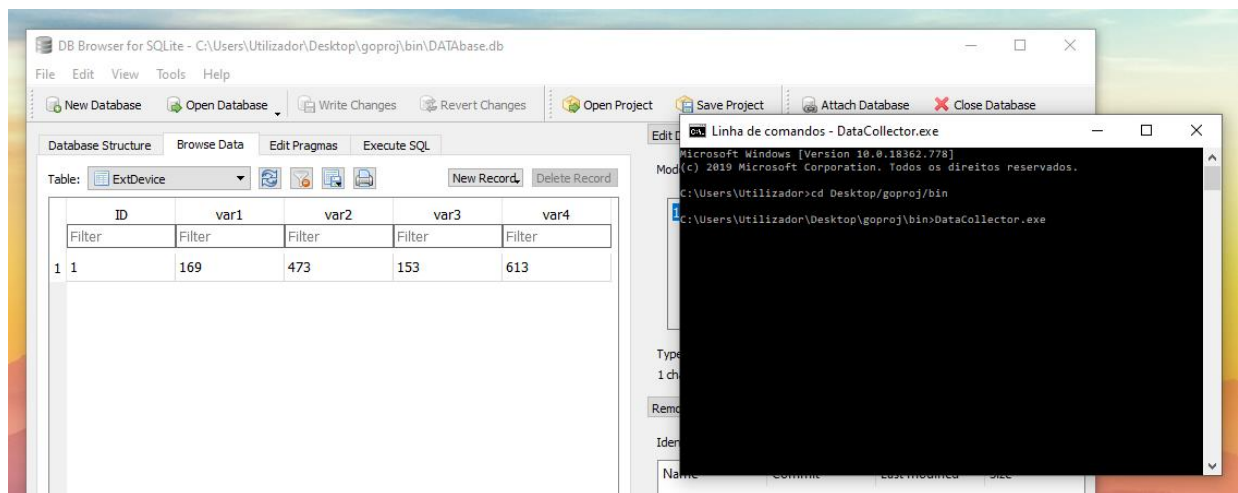


Figure 3 - left: database entries, right: program executing

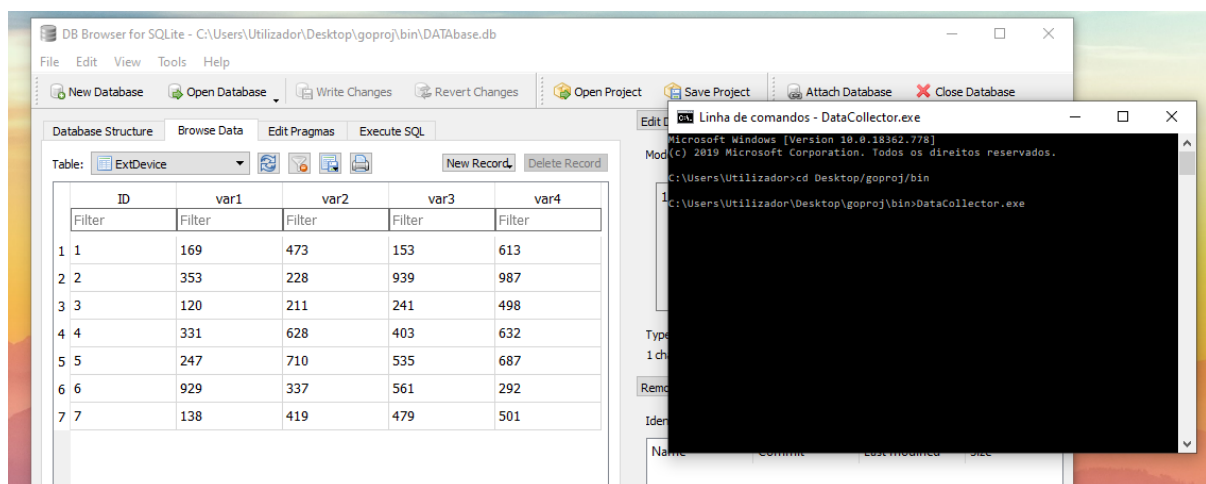
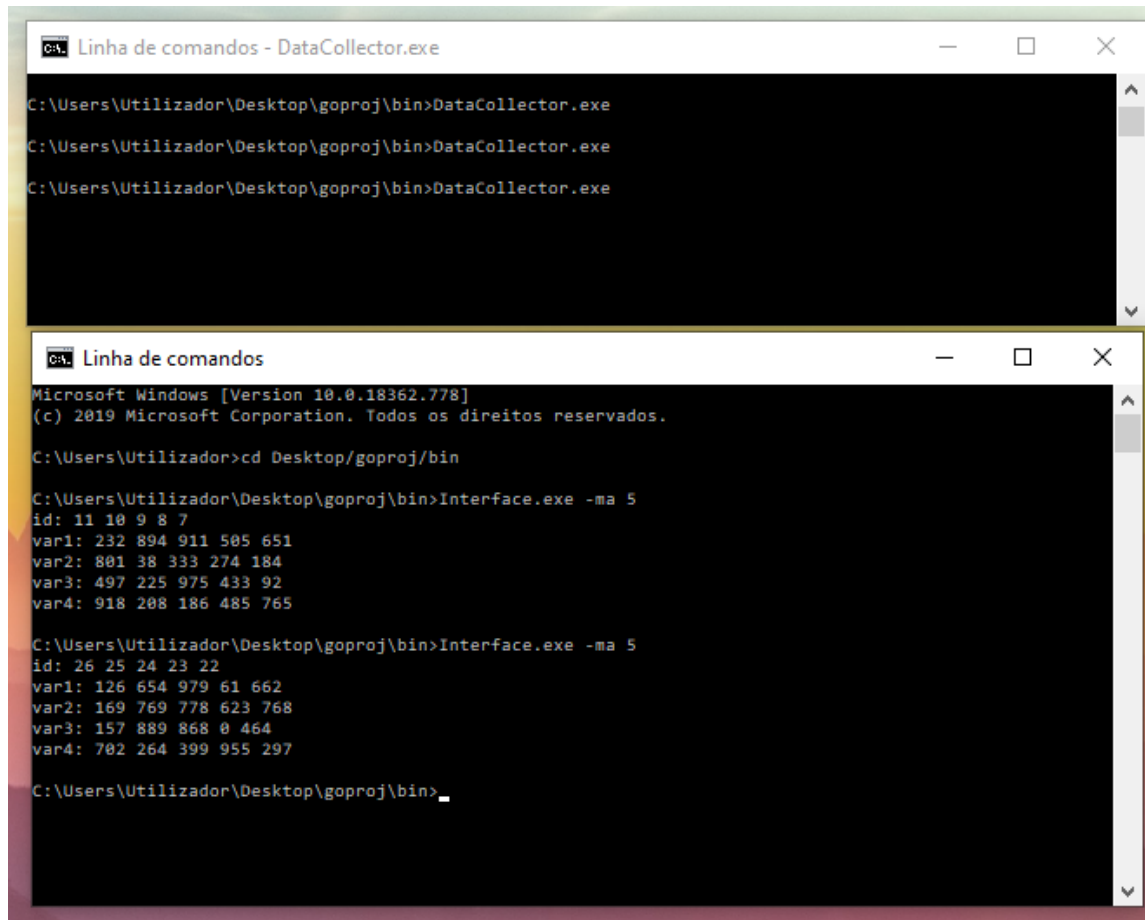


Figure 2 - left: database new entries, right: program executing

## 2. Interaction between the Interface and the database

In Figure 5 it is possible to see the “DataCollector” app running in one terminal, while the Interface gets different results in two different time moments for a “metrics all” command, presenting the last 5 samples for all variables.



The image shows two overlapping Windows command prompt windows. The top window, titled 'Linha de comandos - DataCollector.exe', shows the command 'C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe' being entered three times. The bottom window, titled 'Linha de comandos', shows the command 'C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -ma 5' being entered twice, resulting in two sets of data output. The first set of data is for id 11, and the second set is for id 26. Each set includes an id, a timestamp, and four variables (var1, var2, var3, var4) with their respective values.

```
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe

Microsoft Windows [Version 10.0.18362.778]
(c) 2019 Microsoft Corporation. Todos os direitos reservados.

C:\Users\Utilizador>cd Desktop/goproj/bin

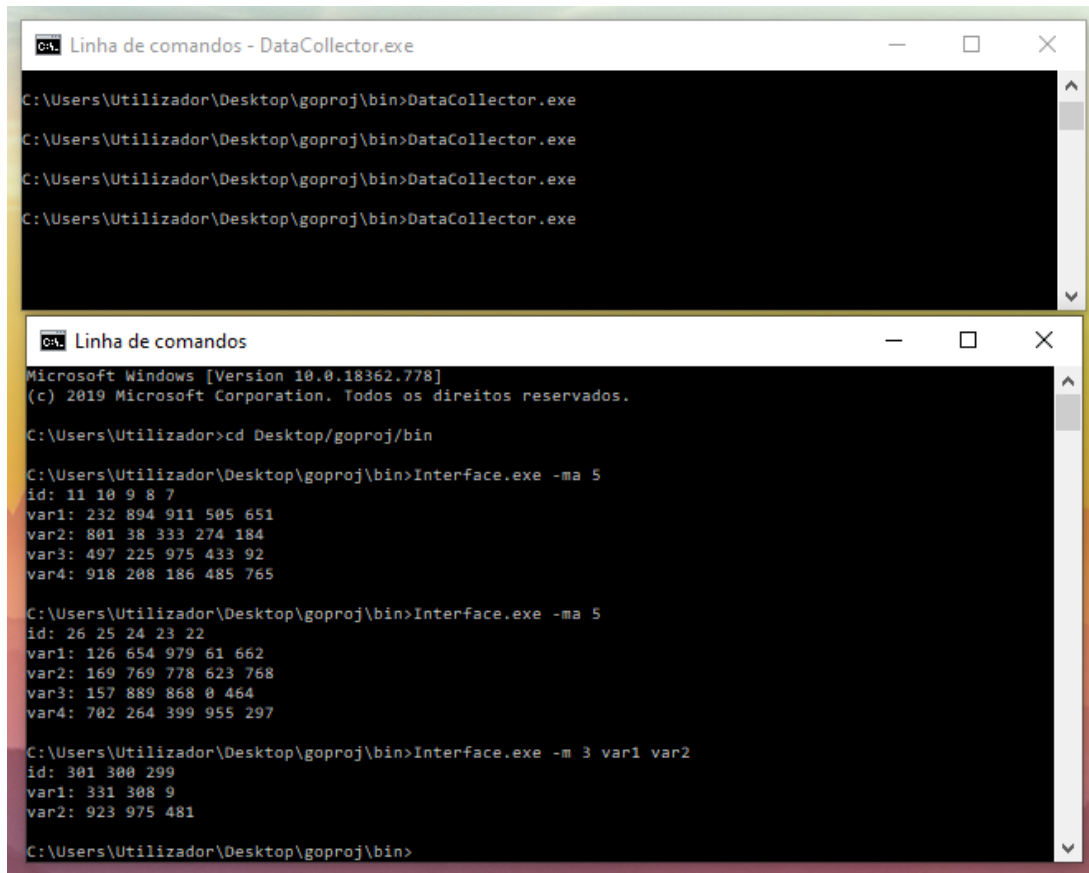
C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -ma 5
id: 11 10 9 8 7
var1: 232 894 911 505 651
var2: 801 38 333 274 184
var3: 497 225 975 433 92
var4: 918 208 186 485 765

C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -ma 5
id: 26 25 24 23 22
var1: 126 654 979 61 662
var2: 169 769 778 623 768
var3: 157 889 868 0 464
var4: 702 264 399 955 297

C:\Users\Utilizador\Desktop\goproj\bin>
```

Figure 5 - Interface for a “metrics all” command

Next figure shows the test for a “metrics” command for two variables (var1 and var2) in three samples.



The image consists of two screenshots of Windows command prompts. The top window, titled 'Linha de comandos - DataCollector.exe', shows four identical commands being entered: 'C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe'. The bottom window, titled 'Linha de comandos', shows a sequence of commands and their outputs. It starts with 'cd Desktop/goproj/bin', followed by three calls to 'Interface.exe' with different parameters. The first call uses '-ma 5' and outputs four rows of data for var1, var2, var3, and var4. The second call also uses '-ma 5' and outputs similar data. The third call uses '-m 3 var1 var2' and outputs data for var1 and var2. The prompt 'C:\Users\Utilizador\Desktop\goproj\bin>' is shown at the end.

```
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe

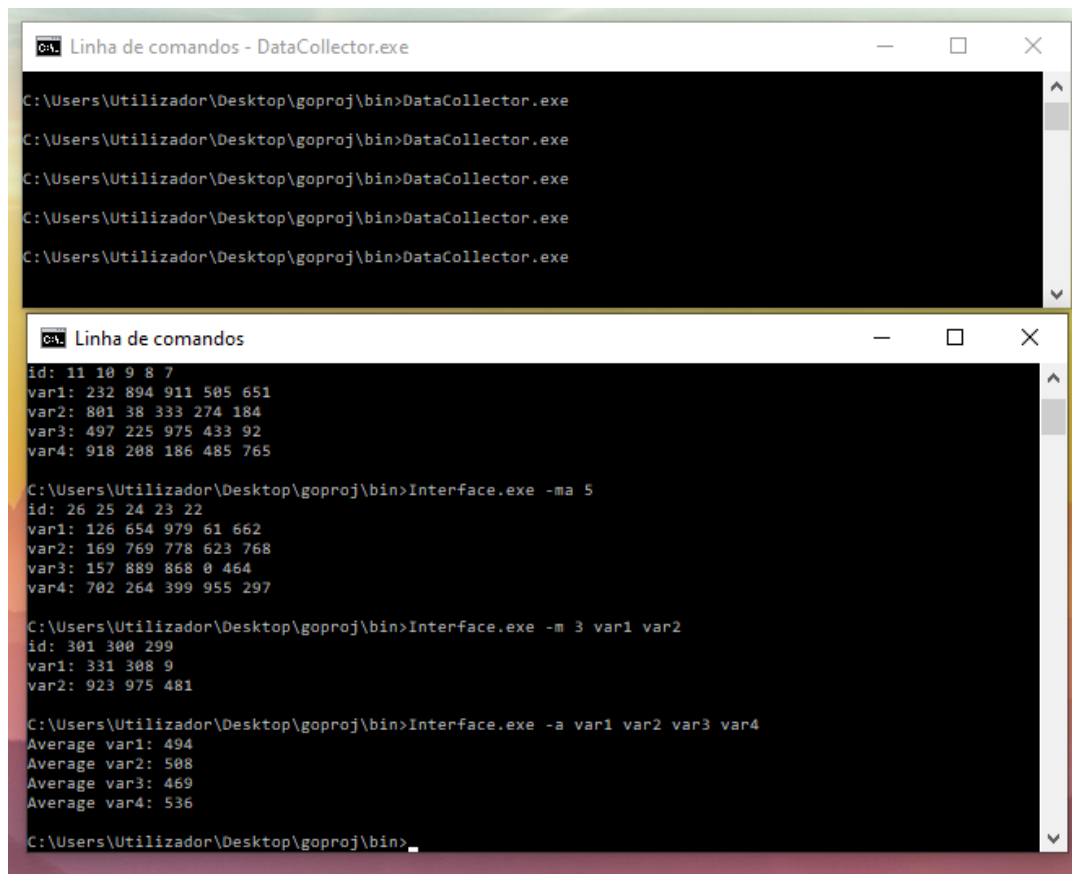
C:\Users\Utilizador>cd Desktop/goproj/bin
C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -ma 5
id: 11 10 9 8 7
var1: 232 894 911 505 651
var2: 801 38 333 274 184
var3: 497 225 975 433 92
var4: 918 208 186 485 765

C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -ma 5
id: 26 25 24 23 22
var1: 126 654 979 61 662
var2: 169 769 778 623 768
var3: 157 889 868 0 464
var4: 702 264 399 955 297

C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -m 3 var1 var2
id: 301 300 299
var1: 331 308 9
var2: 923 975 481
C:\Users\Utilizador\Desktop\goproj\bin>
```

Figure 6 - Interface for a “metrics” command

Last, in Figure 7, it is presented the test to the “average” command of all the four variables



The image shows two screenshots of Windows command prompt windows. The top window, titled 'Linha de comandos - DataCollector.exe', shows the command 'DataCollector.exe' being executed five times. The bottom window, titled 'Linha de comandos', shows the execution of 'Interface.exe' with various flags and arguments, including '-ma 5', '-m 3 var1 var2', and '-a var1 var2 var3 var4'. The output for the '-a' command shows the average for each of the four variables.

```
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe
C:\Users\Utilizador\Desktop\goproj\bin>DataCollector.exe

id: 11 10 9 8 7
var1: 232 894 911 505 651
var2: 801 38 333 274 184
var3: 497 225 975 433 92
var4: 918 208 186 485 765

C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -ma 5
id: 26 25 24 23 22
var1: 126 654 979 61 662
var2: 169 769 778 623 768
var3: 157 889 868 0 464
var4: 702 264 399 955 297

C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -m 3 var1 var2
id: 301 300 299
var1: 331 308 9
var2: 923 975 481

C:\Users\Utilizador\Desktop\goproj\bin>Interface.exe -a var1 var2 var3 var4
Average var1: 494
Average var2: 508
Average var3: 469
Average var4: 536

C:\Users\Utilizador\Desktop\goproj\bin>
```

Figure 7 - Interface for an “average” command