Theoretic/Practical   course on BASCOM AVR Programming.
Author: DAMINO Salvatore.

EXAMPLES of Programs with TIO 16   (7) .

In this exercise programs we'll learn how to perform a more complex management of the **Port I/O** lines available on **Mini Module**.

It is strongly suggested to examine closely this topic by studying the microcontroller **Data Sheet**. The described example programs are widely remarked but, without a preventive study of technical features, the solutions adopted by the program will be obscure and hard to understand.

As we already seen it is possible to set the required direction for each line of the selected **Port**.

The **Example.035** acquires the status of the **8 Red Buttons**, then it check if there are some buttons pressed and if this happens it recognizes which they are.

Once recognized the pressed buttons the program can execute any reaction process; in this example the action is the setting of the **Output** lines of the **Port** connected to **Yellow** and **green LED** available on **TIO 1 6**, in reversed logic.

This example clarifies that the unleashed reaction, when a specific event is recognized, is defined only by programmers will and it is not caused by any other external conditions.

The **Example.036** is really similar from the logic functionality point of view. The only difference regards the operations executed when there are push button pressed. In this program the **LED** driving is more variegated in fact they are activated in sequence by starting from the farer one from the pressed button position.

Added Definitions:
None

Added Declarations:
None

Added Instructions:
None

Added Operators:
None

Example program **35** of **BASCOM AVR** course.

The program acquire status of the **red push buttons** and report it, in reversed logic, on the correspondent **yellow and green LEDs** available on TIO 16 card.

When buttons from **T1** to **T8** are pressed the near **red LEDs** are activated (this happens by hardware, not by program) and the correspondent **LED** from **LD9** to **LD16** are turned off. **TIO 16** is connected to **I/O** connector **CN4** of **GMM TST3**.

The program describe its functionalities on a serial console provided of monitor and keyboard with a fixed physical protocol at **19.200 Baud**, **8 Bit x chr**, **1 Stop bit**, **No Parity**.

This console can be another system capable to support a serial **RS 232** communication. In order to simplify the use it can be used a **PC** provided of one **COMx** line, that execute a terminal emulation program as **HYPERTERMINAL** or the homonym modality provided by **BASCOM AVR** (see **IDE** Configuration).

The program works only when the **GMM AM08** is mounted on **Z2** socket of **GMM TST3**!!

Inside the program the terms that identify the used signals refers to electric diagram and technical manual of **GMM TST3**!!

Added Definitions:
None

Added Declarations:
None

Added Instructions:
None

Added Operators:
None

Example program **36** of **BASCOM AVR** course.

The program acquire status of one of the **Red Push Buttons** and it turn on, in sequence the correspondent **Yellow** and **Green LED** available on **TIO 16** card, by starting from the farer one.
When **Button** from **T1** to **T4** is pressed the near **Red LED** is activated (this happens by hardware, not by program) and a turned on **LED** is shifted from **LD16** to correspondent **LD9** to **LD12**. By pressing a button from **T5** to **T8** the near **Red LED** is activated (this happens by hardware, not by program) and a turned on **LED** is shifted from **LD9** to correspondent **LD13** to **LD16**. When more **Red Buttons** are contemporaneously pressed, the program manage only those with lower number.

TIO 16 is connected to **I/O** connector **CN4** of **GMM TST3**.

The program describe its functionalities on a serial console provided of monitor and keyboard with a fixed physical protocol at **19.200 Baud**, **8 Bit x chr**, **1 Stop bit**, **No Parity**.

This console can be another system capable to support a serial **RS 232** communication. In order to simplify the use it can be used a **PC** provided of one **COMx** line, that execute a terminal emulation program as **HYPERTERMINAL** or the homonym modality provided by **BASCOM AVR** (see **IDE** Configuration).

The program works only when the **GMM AM08** is mounted on **Z2** socket of **GMM TST3**!!

Inside the program the terms that identify the used signals refers to electric diagram and technical manual of **GMM TST3**!!