

LAB NOTE

Subject: Hardware/Software Interfacing

Lab 1: Hello World

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1. Objectives

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- Verify that the printf statements are producing output.
- Experiment with using the Debugger.
- Write a Hello <name> code.

2. Problems and Solutions

2. Problems and Solutions

2.1 Problems

- How to print only a portion of a string.

2.2 Solutions

To print only a portion of string we can use “%.*s” where “.*” is to a specific how much character in a string to print

For example:

```
myStr = “apple”  
printf(“%.*s”,1,myStr);
```

- This snippet code will print out “a”.

```
myStr = “apple”  
printf(“%.*s”,3,myStr);
```

- This snippet code will print out “app”.

3. Software Design

3. Software Design

3.1 List of function

```
void printPattern(char *str)
{
    char myStr[20];

    // Get the length of the input string
    int length = strlen(str);

    // Loop through each character in the string
    for (int i = 0; i < length; i++)
    {
        // Loop through all characters
        for (char j = ' '; j < 'z'; j++)
        {
            // Loop all character until reach the same character
            if (j <= str[i])
            {
                // Print the first letter
                if (i == 0)
                {
                    printf("%c\r\n", j);
                }

                // Print the pattern
                else
                {
                    printf("%.*s%c\r\n", i, myStr, j);
                }
                HAL_Delay(10);
            }
            else
            {
                // Store the character to myStr
                myStr[i] = j - 1;
                break;
            }
        }
    }
}
```

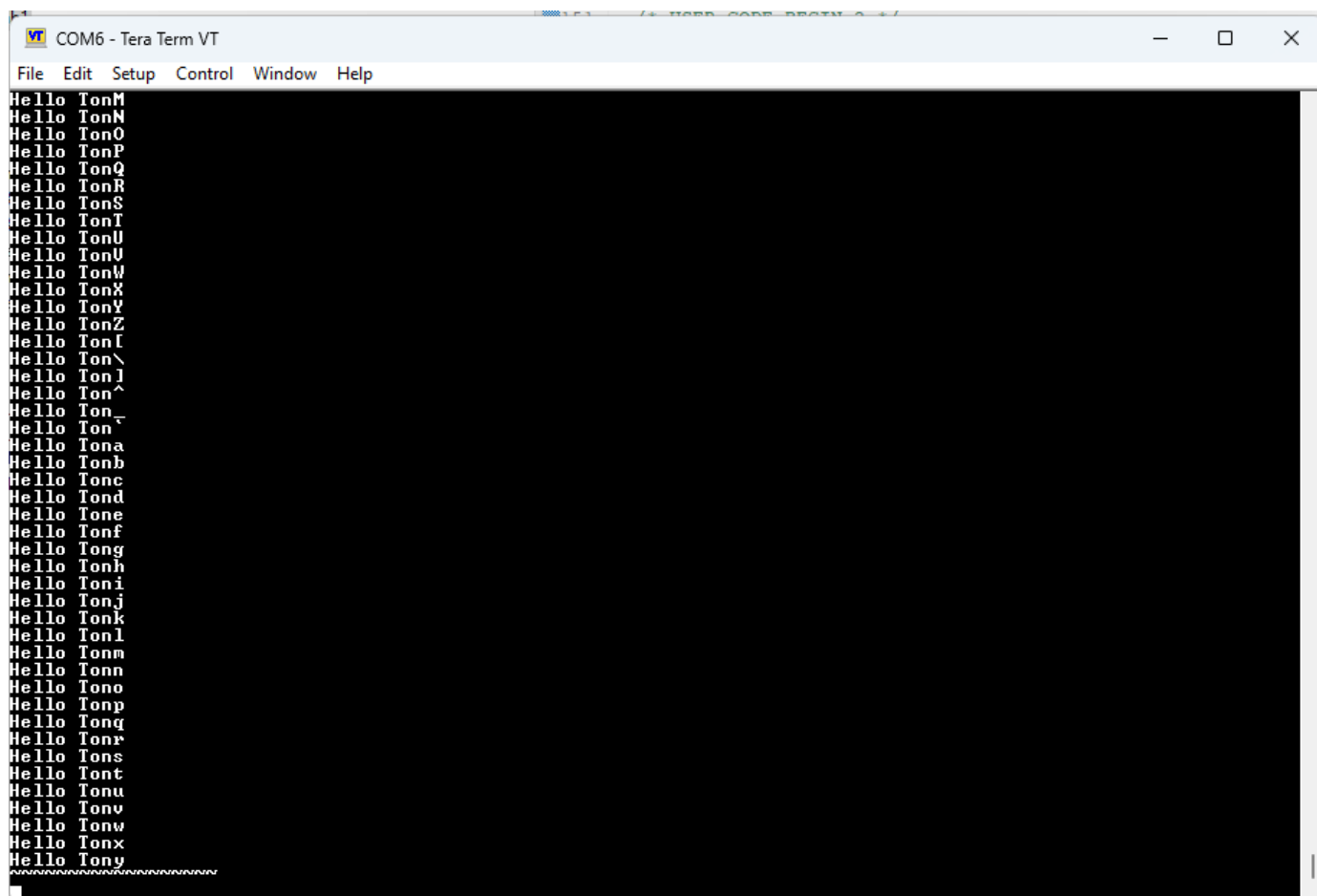
3.2 While loop

```
while (1)
{
    /* USER CODE END WHILE */
    scanf("%s",userName);
    strcat(userOutput,userName); // combine string to make "Hello <name>"
    printPattern(userOutput);
    printf("~~~~~\r\n");

    // Reset for next loop
    strcpy(userOutput,"Hello ");
    /* USER CODE BEGIN 3 */
}
```

4. Result

4. Result



The screenshot shows a Tera Term VT window titled 'COM6 - Tera Term VT'. The window has a menu bar with 'File', 'Edit', 'Setup', 'Control', 'Window', and 'Help'. The main display area is black with white text. The text consists of a list of 'Hello' messages to various 'Ton' characters, starting from 'Hello TonM' and ending with 'Hello Tony'. The list is as follows:

```
Hello TonM
Hello TonM
Hello TonO
Hello TonP
Hello TonQ
Hello TonR
Hello TonS
Hello TonT
Hello TonU
Hello TonU
Hello TonW
Hello TonX
Hello TonY
Hello TonZ
Hello TonI
Hello Ton\
Hello Tonl
Hello Ton^
Hello Ton_
Hello Ton_
Hello Tona
Hello Tonb
Hello Tonc
Hello Tond
Hello Tone
Hello Tonf
Hello Tong
Hello Tonh
Hello Toni
Hello Tonj
Hello Tonk
Hello Tonl
Hello Tonm
Hello Tonn
Hello Tono
Hello Tonp
Hello Tonq
Hello Tonr
Hello Tons
Hello Tent
Hello Tonu
Hello Tonv
Hello Tonw
Hello Tonx
Hello Tony
```

Figure 4-1: Lab1's result

REFERENCES