LAB NOTE

Subject: Hardware/Software Interfacing

Lab 1: Hello World

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1.   Objectives

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

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

3.1   List of function

```c
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;
            }
        }
    }
}
```
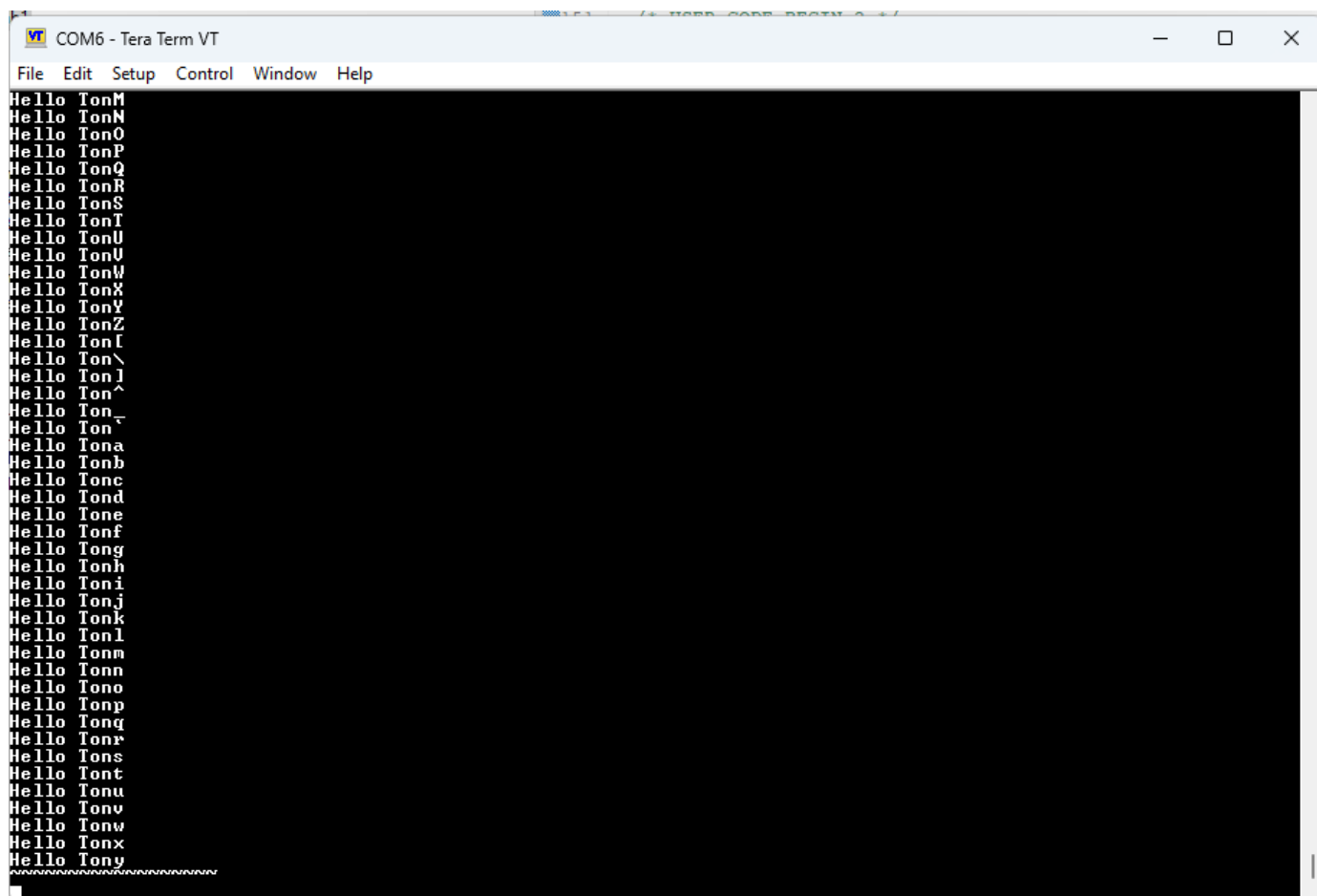
3.2   While loop

```c
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

Figure 4-1: Lab1's result

REFERENCES