

## COMP500 / ENSE501: Week 12 – Exercise:

**EXERCISE NAME:** *Keyboard Whac-A-Mole*

Given the following source code:

```
#include <stdio.h>
#include <conio.h>
#include <time.h>
#include <stdlib.h>

void print_alphabet(char letter_to_hide);
char get_random_key(void);
void wait_for_key(char key_to_wait_for);
```

Using `conio.h`, the function `_getch`, write a program that outputs the letters of the alphabet, with one letter replaced by the underscore character. The user must then type the missing letter on the keyboard. Once correctly typed, the program must randomly pick a new letter to hide, and then print out a new row of the alphabet, with the newly chosen letter replaced by an underscore. Based on the implementation on the following modules of pseudo code.

Implement the `print_alphabet` function based upon the following pseudo code:

```
START print_alphabet(char letter_to_hide)
  FOR (k = 'a'; k <= 'z'; ++k)
    IF k MATCHES letter_to_hide
      PRINT " _ "
    ELSE
      PRINT k
    ENDIF
  ENDfor
  PRINT newline
END
```

Implement the `get_random_letter` function using `rand()` such that it returns a random ASCII value between 'a' and 'z' inclusive.

Implement the `wait_for_key` function based upon the following pseudo code:

```
START wait_for_key(char key_to_wait_for)
  SET key_pressed TO 0
  WHILE key_pressed NOT-EQUAL-TO key_to_wait_for
    key_pressed = _getch()
  ENDWHILE
END
```

Implement the **main** function based upon the following pseudo code:

```
START main(void)
  srand(time(0))
  SET looping TO 1

  WHILE looping
    SET random_key TO get_random_letter()
    CALL print_alphabet WITH random_key
    CALL wait_for_random_key WITH random_key
  ENDWHILE
END
```

An example of the completed program's output is as follows:

```
a _ c d e f g h i j k l m n o p q r s t u v w x y z
a b c d e f g h i j k l m n o p q r s t _ v w x y z
a b c d e f g h i j k l m n o p q r s t u v _ x y z
a b c d e f g h i j k l m _ o p q r s t u v w _ x y z
a b c d e f g h i j k l m n o p q r s t _ v w x y z
a b c d e f g _ i j k l m n o p q r s t u v w x y z
a b c d e f g h i j k l m n o _ q r s t u v w x y z
```

Ensure the program output is exactly as described, and that the whitespace of your source code is well formatted.