

# National University of Computer and Emerging Sciences



## Lab Manual #5

### Programming Fundamentals

(Section BCS-1H1&1H2)

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Sections	BCS-1H1 & 1H2
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## Objectives:

After performing this lab, students will be able to solve programming problems using

- While loop

**Print following patterns using while loop.**

**60 marks**

### 1. Half hourglass

```
* * * * *
* * * *
* * *
* *
*
* *
* * *
* * * *
* * * * *
```

### 2. Hourglass

```
* * * * *
  * * * *
    * * *
      * *
        *
      * *
    * * *
  * * * *
* * * * *
```

### 3. Diamond. Ask the user to enter the number of rows.

```
Enter number of rows to display pattern: 5
  *
 * *
* * *
* * * *
* * * * *
* * * *
* * *
 * *
  *
```

4. Hollow diamond. Ask the user to enter the number of rows and symbol to draw with.

```
Enter no of Rows 5
Enter Symbol to draw with #
  #
 # #
#   #
#     #
#       #
#         #
#         #
#         #
#         #
#         #
```

5. Checkerboard

```
- - - - -
- - - - -
- - - - -
- - - - -
```

6. Combined Pyramids (using numbers).

```
123456789123456789
1234567 1234567
12345 12345
123 123
1 1
```