***DEPARTMENT OF INFORMATION ENGINEERING***Experiment No.

**5**

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| Semester | S.E. Semester IV – Information Technology Engineering |
| Subject | Python Lab (PYL) |
| Subject Professor In-charge | Prof. Anuja Gote |
| Assisting Teachers | Prof. Akshay Loke |
| Laboratory | L07D – Robotics Lab |

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| Experiment Number | 5 | |
| Experiment Title | Write python programs to develop Fibonacci series, Multiplication table and Pascals triangle. | |
| Resources / Apparatus Required | Hardware:  Basic Computer with Windows or Linux OS installed. | Software:  Python 3.6.8, Pycharm |
| Objectives  (Skill Set / Knowledge Tested / Imparted) | To understand concept of if else while loops ..or any looping structure and funcation | |
| Theory | **If-Else Statement:**Decision making is required when we want to execute a code only if a certain condition is satisfied.The if…elif…else statement is used in Python for decision making.  The if..else statement evaluates test expression and will execute body of if only when test condition is True.  If the condition is False, body of else is executed. Indentation is used to separate the blocks  **While Loop:**A **while** loop statement in Python programming language repeatedly executes a target statement as long as a given condition is true. Syntax: The syntax of a **while** loop in Python programming language is −  while expression:  statement(s)  Here, **statement(s)** may be a single statement or a block of statements. The **condition** may be any expression, and true is any non-zero value. The loop iterates while the condition is true.  When the condition becomes false, program control passes to the line immediately following the loop.  **For Loop**:A for loop is used for iterating over a sequence (that is either a list, a tuple, a dictionary, a set, or a string).  This is less like the for keyword in other programming language, and works more like an iterator method as found in other object-orientated programming languages.  With the for loop we can execute a set of statements, once for each item in a list, tuple, set etc.  **Functions:**  They are known in most programming languages, sometimes also called subroutines or procedures.**Functions** are used to utilize code in more than one place in a program. The only way without **functions**to reuse code consists in copying the code. A**function in Python** is defined by a def statement. | |
| Code | print("-----------programs to develop Fibonacci series, Multiplication table and Pascals triangle.----------------")  print("-----------CHOICE----------------")  print("1.Fibonacci series")  print("2.Multiplication Table")  print("3.Pascals triangle")  ch = int(input("Enter your Choice : "))  while True:  if ch == 1:  nterms = int(input("How many terms? "))  n1 = 0  n2 = 1  count = 0  if nterms <= 0:  print("Please enter a positive integer")  elif nterms == 1:  print("Please enter a positive integer")  print(n1)  else:  print("Fibonacci sequence upto", nterms, ":")  while count < nterms:  print(n1, end=' , ')  nth = n1 + n2  # update values  n1 = n2  n2 = nth  count += 1  elif ch == 2:  print()  n = int(input("Enter number for table: "))  for i in range(1, 10, 1):  print(n, "x", i, "=", n \* i)  print()  elif ch == 3:  n = int(input("Enter number of rows: "))  a = []  for i in range(n):  a.append([])  a[i].append(1)  for j in range(1, i):  a[i].append(a[i - 1][j - 1] + a[i - 1][j])  if (n != 0):  a[i].append(1)  for i in range(n):  print(" " \* (n - i), end=" ", sep=" ")  for j in range(0, i + 1):  print('{0:6}'.format(a[i][j]), end=" ", sep=" ")  print()  else:  print("Invalid Choice")  ch = int(input('Enter your choice: '))  print() | |
| Output Screenshots |  | |
| Conclusion | This Experiment We Learned About Basics Of Python looping Structure like while loop for loop then if else statements… all in the details.. | |