 *DEPARTMENT OF INFORMATION TECHNOLOGY*

Experiment No.1

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| **Experiment Number** | **1** | |
| **Experiment Title** | **Pattern Programs** | |
| **Resources / Apparatus Required** | Java Developer Kit , Command Prompt | Standard PC with Windows 7,8 or 10 |
| **Objectives**  **(Skill Set / Knowledge Tested / Imparted)** | To Learn the concept of Nested Loops | |
| **Theory** | **Nested loops** are the loops which contain another looping statement in a single loop. These types of loops are used to create matrix. Any loop can contain a number of loop statements in itself. If we are using loop within loop that is called nested loop. In this the outer loop is used for counting rows and the internal loop is used for counting columns | |
| **Program & output** | import java.lang.\* ;  import java.util.\* ;  class Pattern1121  {  public static void main(String[] args)  {  int i,j,k,l,n;  Scanner s = new Scanner(System.in) ;  System.out.print("\nEnter number of rows ");  n=s.nextInt() ;    for(i=1;i<=n;i++)  {  for(j=1;j<=n-i;j++)  {  System.out.print(" ");  }    for(k=1;k<=i;k++)  {  System.out.print(k);  }    for(l=i-1;l>=1;l--)  {  System.out.print(l);  }    System.out.print("\n");  }  }  }  C:\Users\Ashu\Desktop\Coding\Codes\Java Programs\Screen Shots\Pattern1121.png  import java.lang.\* ;  import java.util.\* ;  class PatternDiamond  {  public static void main(String[] args)  {  int n, c, k, space = 1;  Scanner s = new Scanner(System.in) ;    System.out.print("\nEnter number of rows ");  n=s.nextInt() ;  space = n - 1;    for (k = 1; k <= n; k++)  {  for (c = 1; c <= space; c++)  System.out.print(" ");    space--;    for (c = 1; c <= 2\*k-1; c++)  System.out.print("\*");    System.out.print("\n");  }    space = 1;    for (k = 1; k <= n - 1; k++)  {  for (c = 1; c <= space; c++)  System.out.print(" ");    space++;    for (c = 1 ; c <= 2\*(n-k)-1; c++)  System.out.print("\*");    System.out.print("\n");  }  }  }  C:\Users\Ashu\Desktop\Coding\Codes\Java Programs\Screen Shots\PatternDiamond.png  import java.lang.\* ;  import java.util.\* ;  class PatternABC  {  public static void main(String[] args)  {  int i=1,n,t;  char j=65 ;  Scanner s = new Scanner(System.in) ;  System.out.print("\nEnter the value of n : ");  n=s.nextInt();    while(n!=0)  {  t=i ;  while(t!=0)  {  System.out.print(j) ;  j++ ;  t-- ;  }    System.out.println() ;  i++ ;  t=i ;  n-- ;  }  }  }  C:\Users\Ashu\Desktop\Coding\Codes\Java Programs\Screen Shots\PatternABC.png | |
| **Conclusion** | Hence nested loops can be used to execute various programs. | |