Name: **Roll No.:** **Submission time:**

1. Create a folder (directory) **OUTP** and do the following in the folder **OUTP**.

2. Create a data file **vecu.dat** that contains the dimension in the first line and vector components in the second line. Use the following for **vecu.dat**

   5

   1.0 2.0 3.0 4.0 5

3. Create a data file **vecv.dat** that contains the dimension in the first line and vector components in the second line. Use the following for **vecv.dat**

   5

   2.0 -5.0 7.0 5.0 0

4. Skeleton of a C program **outp.c** is shown below. Complete the C program. You may add extra variables as needed. The program computes the outer product of two vectors. The outer product of two vectors $u = (u_1, u_2, \cdots, u_n)$ and $v = (v_1, v_2, \cdots, v_n)$ is a matrix C of size $n \times n$ and $C_{ij} = u_i v_j$. [You may remove the comments part in the program]

```
#include <stdio.h>
#define N 100
int main()
{int m,n,rowc,colc;
double C[N][N],u[N],v[N];
FILE *fu,*fv;
//Open vecu.dat for reading and assign to fu. Check that file opening successful.
//Open vecv.dat for reading and assign to fv. Check that file opening successful.
//Read the actual vector dimension of u in m and vector components in u
//Print the vector u in the terminal along a row
printf("\n-----------\n");
//Read the actual vector dimension of v in n and vector components in v
//Print the vector v in the terminal along row
printf("\n-----------\n");
//If m is not equal to n STOP. Oherwise assign the row and column dimensions of C
//Perform the outer product and store the result in C
//Print the matrix C in the terminal row-wise using 2 decimal places.
return 0;
}
```

5. Execute the following command
   1. clear
   2. pwd
   3. gcc outp.c
   4. cat vecu.dat vecv.dat
   5. ./a.out