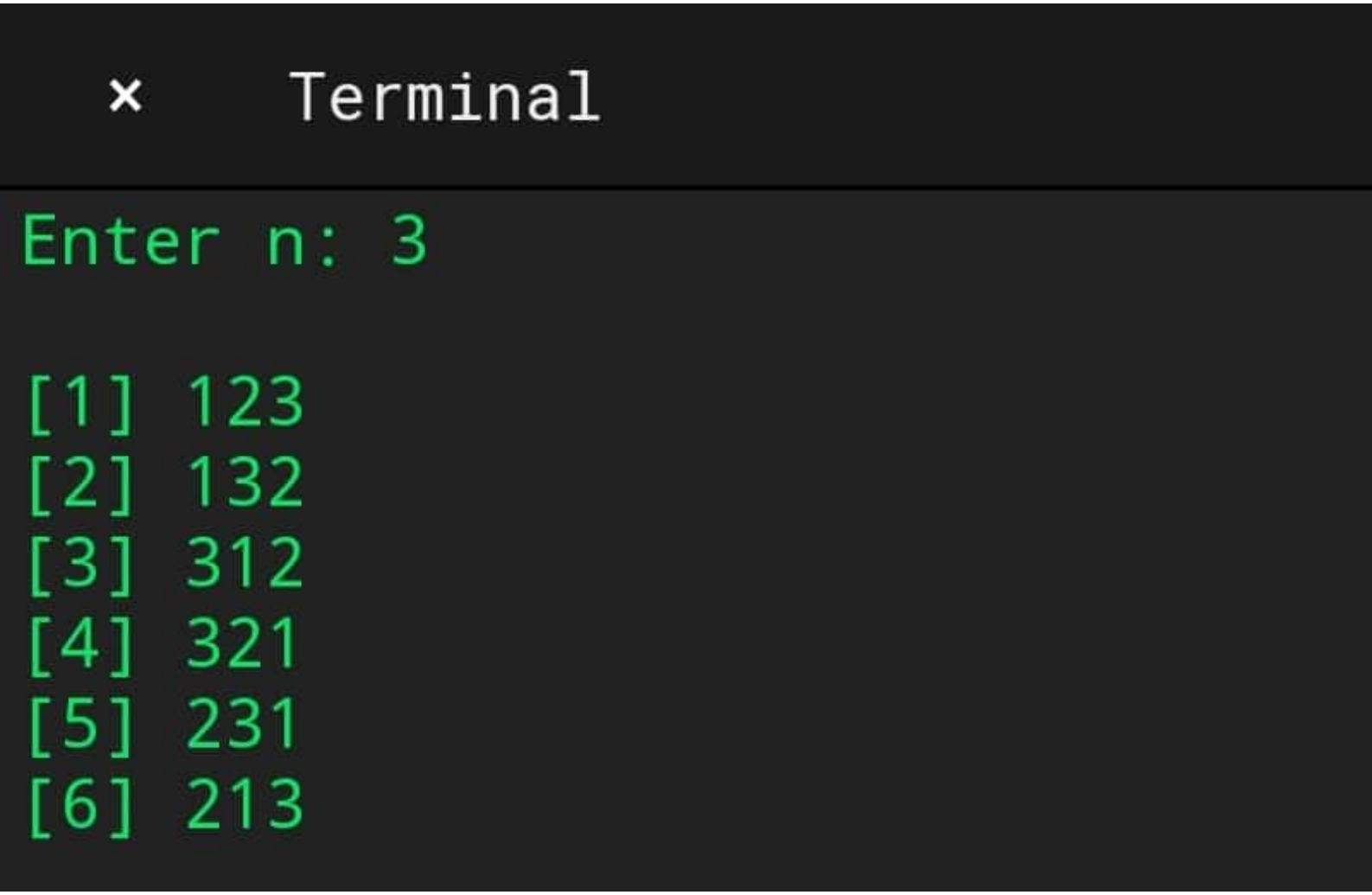
JohnsonTrotter_Perm

Saved

```c
#include <stdio.h>
int N, i, count=0;
int p[100], pi[100];
int dir[100];
void PrintPerm()
{
   int i;
   count = count + 1;
   printf( "\n[%d] ", count );
   for (i=1; i <= N; ++i)
      printf( "%d", p[i] );
}
void Move(int x,int d)
{
   int z;
   z = p[pi[x]+d];
   p[pi[x]] = z;
   p[pi[x]+d] = x;
   pi[z] = pi[x];
   pi[x] = pi[x]+d;
}
void Perm(int n)
{
   int i;
   if(n>N)
      PrintPerm();
   else
   {
      Perm(n+1);
      for (i=1; i<=n-1; ++i)
      {
         Move(n,dir[n] );
         Perm(n+1);
      }
      dir[n]=-dir[n];
   }
}
void main ()
{
   printf("Enter n: ");
   scanf("%d",&N);
   for (i=1; i<=N; ++i)
   {
      dir[i] = -1;
      p[i] = i;
      pi[i] = i;
   }
   Perm ( 1 );
   printf( "\n" );
}
```



```
Terminal
Enter n: 5

[1] 12345
[2] 12354
[3] 12534
[4] 15234
[5] 51234
[6] 51243
[7] 15243
[8] 12543
[9] 12453
[10] 12435
[11] 14235
[12] 14253
[13] 14523
[14] 15423
[15] 51423
[16] 54123
[17] 45123
[18] 41523
[19] 41253
[20] 41235
[21] 41325
[22] 41352
[23] 41532
[24] 45132
[25] 54132
[26] 51432
[27] 15432
[28] 14532
[29] 14352
[30] 14325
[31] 13425
[32] 13452
[33] 13542
[34] 15342
[35] 51342
[36] 51324
[37] 15324
[38] 13524
[39] 13254
[40] 13245
[41] 31245
[42] 31254
[43] 31524
[44] 35124
[45] 53124
[46] 53142
[47] 35142
[48] 31542
[49] 31452
[50] 31425
[51] 34125
[52] 34152
[53] 34512
[54] 35412
[55] 53412
[56] 54312
[57] 45312
[58] 43512
[59] 43152
[60] 43125
[61] 43215
[62] 43251
[63] 43521
[64] 45321
[65] 54321
[66] 53421
[67] 35421
[68] 34521
[69] 34251
[70] 34215
[71] 32415
[72] 32451
[73] 32541
[74] 35241
[75] 53241
[76] 53214
[77] 35214
[78] 32514
[79] 32154
[80] 32145
[81] 23145
[82] 23154
[83] 23514
[84] 25314
[85] 52314
[86] 52341
[87] 25341
[88] 23541
[89] 23451
[90] 23415
[91] 24315
[92] 24351
[93] 24531
[94] 25431
[95] 52431
[96] 54231
[97] 45231
[98] 42531
[99] 42351
[100] 42315
[101] 42135
[102] 42153
[103] 42513
[104] 45213
[105] 54213
[106] 52413
[107] 25413
[108] 24513
[109] 24153
[110] 24135
[111] 21435
[112] 21453
[113] 21543
[114] 25143
[115] 52143
[116] 52134
[117] 25134
[118] 21534
[119] 21354
[120] 21345
```