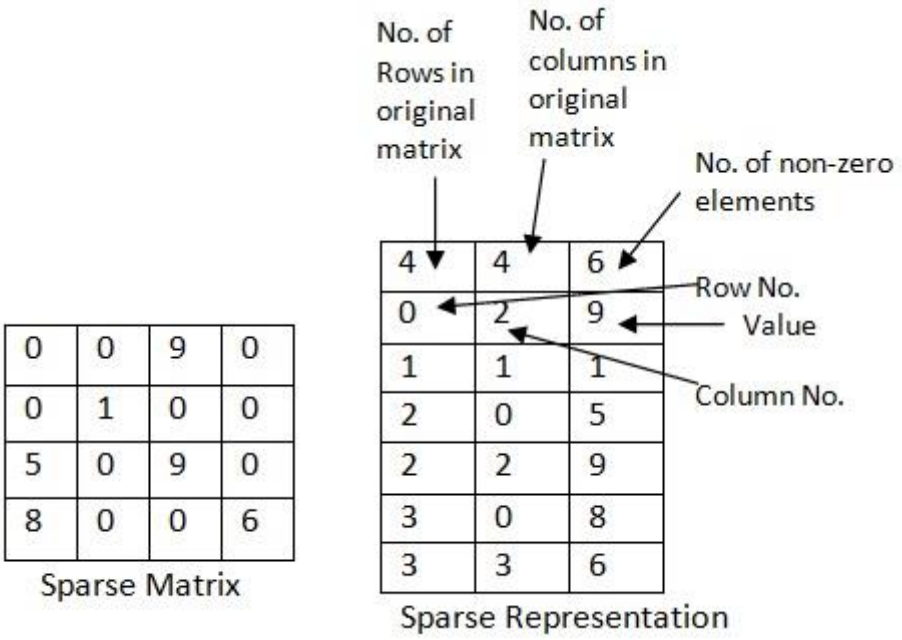
A sparse matrix has many zero elements. For example, the following 4x4 matrix is a sparse Matrix. Conventional method of representation of such a matrix is not space efficient. It will be prudent to store non-zero elements only. If this is done, then the matrix may be thought of as an ordered list of non-zero elements. Information about non-zero elements have three parts. Row, Column and its value.



0	0	9	0
0	1	0	0
5	0	9	0
8	0	0	6

4	4	6
0	2	9
1	1	1
2	0	5
2	2	9
3	0	8
3	3	6

/* PROGRAM */

```
void main()
{
 int a[10][10],i,j,r,c,nz=0,sp[50][3],k;
 printf("Enter row & column no. of matrix");
 scanf("%d%d",&r,&c);                    ;
 printf("Enter %d elements",r*c);
 for(i=0;i<r;i++)
 {
  for(j=0;j<c;j++)
  { scanf("%d",&a[i][j]);
    if(a[i][j]>0)
      nz++;
  }
 }
  /*representation of 3 tuple*/
  sp[0][0]=r;
  sp[0][1]=c;
```

```
 sp[0][2]=nz;
 k=1;
 for(i=0;i<r;i++)
 {
  for(j=0;j<c;j++)
  {
   if (a[i][j]>0)
   {
    sp[k][0]=i;
    sp[k][1]=j;
    sp[k][2]=a[i][j];
    k++;
   }
  }
}
/*display original */
printf("\noriginal");
for(i=0;i<r;i++)
{
 printf("\n");
 for(j=0;j<c;j++)
  printf("%d ",a[i][j]);
}
/* display 3 tuple form */
printf("\n# Tuple");
for(i=0;i<k;i++)
{
 printf("\n");
 for(j=0;j<3;j++)
  printf("%d  ",sp[i][j]);
}
getch();
}
```