Dynamic Memory allocation of Array

```
#include<stdio.h>
#include<malloc.h>

void OneDimentional()
{
	int *p;
	int col, i;

	printf("Enter number of elemets\n");
	scanf("%d", &col);

	p = (int *)malloc(sizeof(int) * col);

	printf("Enter the elements\n");
	for(i = 0 ; i < col ; i++)
	{
		scanf("%d", &p[i]);
	}

	printf("Elemets in 1D array are\n");
	for(i = 0 ; i < col ; i++)
	{
		printf(" %d ", p[i]);
	}
	printf("\nFreeing the allocated memory for the 1D array\n");
	free(p);
}

void TwoDimentional()
{
	int **p = NULL;
	int col,row,i,j;

	printf("Enter number of rows & columns\n");
	scanf("%d %d" , &row, &col);

	p = (int**)malloc(sizeof(int) * row);

	for(i = 0 ; i < row ; i++)
	{
		p[i] = (int *)malloc(sizeof(int) * col);
	}

	printf("Enter elemets in the array\n");
	for(i = 0 ; i < row ; i++)
	{
		for(j = 0 ; j < col ; j++)
		{
			scanf("%d" , &p[i][j]);
		}
	}

	printf("Elemets in 2D array are\n");
	for(i = 0;i < row ; i++)
	{
		printf("\n");
		for(j = 0 ; j < col ; j++)
		{
			printf(" %d " , p[i][j]);
		}
	}

	printf("\nFree the allocated memory for the 1D array\n");
	for(i = 0 ; i < row ; i++)
	{
		free(p[i]);
	}
	free(p);
}
```

```
void ThreeDimentional()
{
	int ***p;
	int first, second, third, i, j, k;

	printf("Enter first, second and third dimention\n");
	scanf("%d %d %d", &first, &second, &third);

	p = (int ***)malloc(sizeof(int**) * first);
	for(i = 0 ; i < first ; i++)
	{
		p[i] = (int **)malloc(sizeof(int*) * second);

		for( j = 0; j < second ; j++)
		{
			p[i][j] = (int *)malloc(sizeof(int) * third);
		}
	}
	printf("Enter the elements\n ");
	for(i = 0 ; i < first ; i++)
	{
		for(j =0 ; j < second ; j++)
		{
			for(k = 0 ; k < third ; k++)
			{
				scanf("%d" , &p[i][j][k]);
			}
		}
	}
	printf("Enter the elements\n ");
	for(i = 0 ; i < first ; i++)
	{
		for(j = 0 ; j < second ; j++)
		{
			printf("\n");
			for(k = 0 ; k < third ; k++)
			{
				printf(" %d " , p[i][j][k]);
			}
		}
	}
	printf("\nFree the memory of array\n");
	for(i = 0 ; i < first ; i++)
	{
		for(j = 0 ; j < second ; j++)
		{
			free(p[i][j]);
		}
		free(p[i]);
	}
	free(p);
}

int main()
{
	int choice =0 ,i = 0, sizeX = 4, sizeY = 5;

	printf("Enter your choice:\n");
	printf("1: One Dimentional\n2: Two Dimentional\n3: Three Dimentional\n");
	scanf("%d",&choice);

	switch(choice)
	{
		case 1:		OneDimentional();		break;
		case 2:		TwoDimentional();		break;
		case 3:		ThreeDimentional();		break;
		default:	printf("Not a valid choice");
	}
	return 0;
}
```