PR-5: Array:-

1. Write a C program to print all negative element from static array.

```
#include<stdio.h>

int main() {
	int roll[5] = {-52, 32, -62, 97, 12} , i;

	for (i=0; i<=4; i++) {
		if (roll[i] < 0) {
			printf("%d\n", roll[i]);
		}
	}

	return 0;
}
```

Output:-

2. Write a C program to print all negative element from dynamic array.

```
#include<stdio.h>

int main() {
	int arr[100], n, i;

	printf("Please enter size of an Array: ");
	scanf("%d", &n);

	for (i=0; i<n; i++) {
		printf("Please enter element of array %d: ",i);
		scanf("%d", &arr[i]);
	}

	printf("Ans element of array: ");
	for (i=0; i<n; i++) {
		if (arr[i] < 0) {
			printf("%d ", arr[i]);
		}
	}

	return 0;
}
```

Output:-

```
Please enter size of an Array: 5
Please enter element of array 0: 3
Please enter element of array 1: -4
Please enter element of array 2: -8
Please enter element of array 3: 614
Please enter element of array 4: -12
Ans element of array: -4 -8 -12
```

3. Write a C program to print all even element from static array.

```
#include<stdio.h>

int main() {
	int roll[5] = {51 , 42, 86, 31, 321}, i;

	for (i=0; i<=4; i++) {
		if (roll[i] %2 == 0) {
			printf("%d\n", roll[i]);
		}
	}

	return 0;
}
```

Output:-

```
42
86
```

4. Write a C program to print all odd element from dynamic array.

```
#include<stdio.h>

int main() {
	int arr[100], n, i;

	printf("Please enter size of an Array: ");
	scanf("%d", &n);

	for (i=0; i<n; i++) {
		printf("Please enter element of array %d: ",i);
		scanf("%d", &arr[i]);
	}

	printf("Ans element of array: ");
	for (i=0; i<n; i++) {
		if (arr[i] %2 == 1) {
			printf("%d ", arr[i]);
		}
	}

	return 0;
}
```

Output:-

```
Please enter size of an Array: 4
Please enter element of array 0: 3
Please enter element of array 1: 6
Please enter element of array 2: 16
Please enter element of array 3: 1
Ans element of array: 3 1
```

5. Write a C program to print all element that are divisible by 3 from dynamic array.

```
#include<stdio.h>

int main() {
	int arr[100], n, i;

	printf("Please enter size of an Array: ");
	scanf("%d", &n);

	for (i=0; i<n; i++) {
		printf("Please enter element of array %d: ",i);
		scanf("%d", &arr[i]);
	}

	printf("Ans element of array: ");
	for (i=0; i<n; i++) {
		if (arr[i] %3 == 0) {
			printf("%d ", arr[i]);
		}
	}

	return 0;
}
```

Output:-

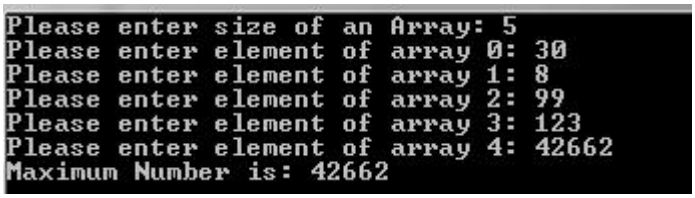
```
Please enter size of an Array: 5
Please enter element of array 0: 42
Please enter element of array 1: 1
Please enter element of array 2: 3
Please enter element of array 3: 9
Please enter element of array 4: 27
Ans element of array: 42 3 9 27
```

6. Write a C program to find max element from an dynamic array.

```
#include<stdio.h>

int main() {
	int arr[100], n, i, max = 0;

	printf("Please enter size of an Array: ");
	scanf("%d", &n);

	for (i=0; i<n; i++) {
		printf("Please enter element of array %d: ",i);
		scanf("%d", &arr[i]);
	}
```

```
        for (i=0; i<n; i++) {
                if (arr[i] > max) {
            max = arr[i];
        }
        }

        printf("Maximum Number is: %d", max);

        return 0;
}
```

Output:-



7. Write C program to find second largest number in array.

```
#include<stdio.h>


int main() {

        int arr[100], n, i, m1 = 0, m2 = 0;


        printf("Please enter size of an array: ");

        scanf("%d", &n);


        for (i=0; i<n; i++) {

                printf("Please enter value of array: ");

                scanf("%d", &arr[i]);

        }


        for (i=0; i<n; i++) {

                if (arr[i] > m1) {

                        m2 = m1;
```

```
                m1 = arr[i];
            } else if (arr[i] > m2 && arr[i] != m1) {
                m2 = arr[i];
            }
        }

        printf("2nd Maximum is: %d", m2);

        return 0;
}
```

Output:-

```
Please enter size of an array: 5
Please enter value of array: 10
Please enter value of array: 20
Please enter value of array: 3050
Please enter value of array: 60
Please enter value of array: 80
2nd Maximum is: 80
```

8. Write C program to Update the element into array.

```
#include<stdio.h>

int main() {
        int arr[100], n, i, m1 = 0, m2 = 0, newElement, i1;

        printf("Please enter size of an array: ");
        scanf("%d", &n);

        for (i=0; i<n; i++) {
            printf("Please enter value of array: ");
            scanf("%d", &arr[i]);
        }
```

```
	printf("Which element so yo need to change?");
	scanf("%d", &i1);

	printf("Enter The New Element");
	scanf("%d", &newElement);

	arr[i1 - 1] = newElement;

	for (i=0; i<n; i++) {
		printf("%d ", arr[i]);
	}

	return 0;
}
```

Output:-

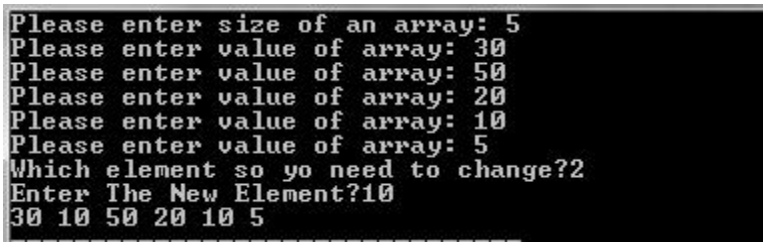
```
Please enter size of an array: 5
Please enter value of array: 10
Please enter value of array: 20
Please enter value of array: 30
Please enter value of array: 40
Please enter value of array: 50
Which element so yo need to change?2
Enter The New Element60
10 60 30 40 50
```

9. Write C program to Insert the element into array.

```
#include<stdio.h>

int main() {
	int arr[100], n, i, m1 = 0, m2 = 0, newElement, i1;

	printf("Please enter size of an array: ");
```

```
	scanf("%d", &n);

	for (i=0; i<n; i++) {
		printf("Please enter value of array: ");
		scanf("%d", &arr[i]);
	}

	printf("Which element so yo need to change?");
	scanf("%d", &i1);

	printf("Enter The New Element?");
	scanf("%d", &newElement);

	n++;

	for (i=n-1; i>=i1; i--) {
		arr[i] = arr[i-1];
	}

	arr[i1 - 1] = newElement;

	for (i=0; i<n; i++) {
		printf("%d ", arr[i]);
	}

	return 0;
}
```

Output:-

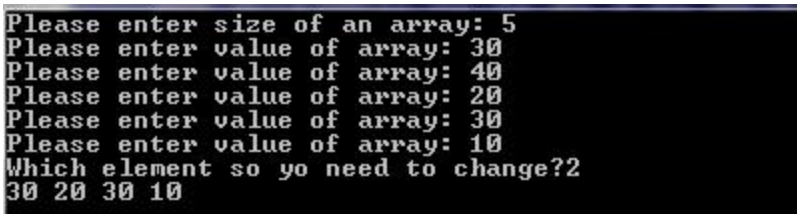


10. Write C program to Delete the element into array.

```
#include<stdio.h>


int main() {
	int arr[100], n, i, m1 = 0, m2 = 0, i1;


	printf("Please enter size of an array: ");
	scanf("%d", &n);


	for (i=0; i<n; i++) {
		printf("Please enter value of array: ");
		scanf("%d", &arr[i]);
	}


	printf("Which element so yo need to change?");
	scanf("%d", &i1);


	n--;


	for (i=i1-1; i<=n; i++) {
		arr[i] = arr[i+1];
	}
```

```
        for (i=0; i<n; i++) {
                printf("%d ", arr[i]);
        }

        return 0;
}
```

Output:-

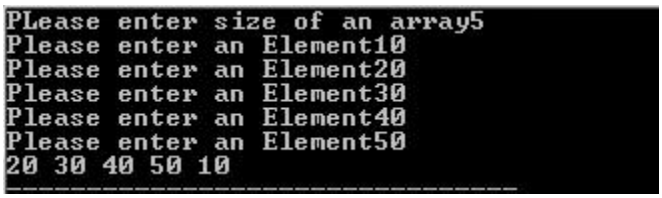


11. Write C program to left rotate an array element.

```
#include<stdio.h>

int main() {
        int arr[100], i, n, first = 0;

        printf("PLease enter size of an array");
        scanf("%d", &n);

        for (i=0; i<n; i++) {
                printf("Please enter an Element");
                scanf("%d", &arr[i]);
        }

        first = arr[0];

        for (i=0; i<n; i++) {
```

```
                arr[i] = arr[i+1];
        }


        arr[n-1] = first;


        for (i=0; i<n; i++) {
                printf("%d ", arr[i]);
        }


        return 0;
}
```

Output:-

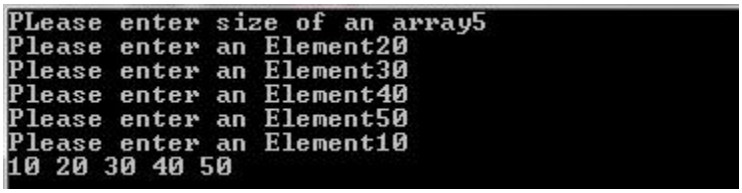


12. Write C program to right rotate an array element.

```
#include<stdio.h>

int main() {
        int arr[100], i, n, last = 0;

        printf("PLease enter size of an array");
        scanf("%d", &n);

        for (i=0; i<n; i++) {
                printf("Please enter an Element");
                scanf("%d", &arr[i]);
        }

        last = arr[n-1];

        for (i=n-1; i>=0; i--) {
                arr[i] = arr[i-1];
        }

        arr[0] = last;

        for (i=0; i<n; i++) {
```

```
            printf("%d ", arr[i]);
        }

        return 0;
}
```

Output:-

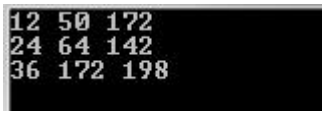


13. Write C program to addition of two matrices.

```
#include<stdio.h>


int main() {

        int arr1[3][3] = {

                {1, 25, 86},

                {2, 32, 71},

                {3, 84, 99}

        };

        int arr2[3][3] = {

                {11, 25, 86},

                {22, 32, 71},

                {33, 88, 99}

        };

        int res[3][3] = {0};


        int i, j;


        for (i=0; i<3; i++) {

                for (j=0; j<3; j++) {
```

```
                res[i][j] = arr1[i][j] + arr2[i][j];
            }
        }

        for (i=0; i<3; i++) {
            for (j=0; j<3; j++) {
                printf("%d ", res[i][j]);
            }
                printf("\n");
        }

        return 0;
}
```

Output:-

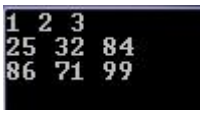


14. Write C program matrix convert into transpose matrix.

```
#include<stdio.h>

int main() {
        int arr[3][3] = {
            {1, 25, 86},
            {2, 32, 71},
            {3, 84, 99}
        };
        int res[3][3] = {0};
```

```
	int i, j;

	for (i=0; i<3; i++) {
		for (j=0; j<3; j++) {
			res[j][i] = arr[i][j];
		}
	}

	for (i=0; i<3; i++) {
		for (j=0; j<3; j++) {
			printf("%d ", res[i][j]);
		}
			printf("\n");
	}

	return 0;
}
```

Output:-



15. Write C program to find sum of diagonal elements of a matrix.

```
#include<stdio.h>

int main() {
	int arr[3][3] = {
		{1, 25, 86},
		{2, 32, 71},
```

```
            {3, 84, 99}
        };
        int i, j, sum = 0;

        for (i=0; i<3; i++) {
            for (j=0; j<3; j++) {
                if (i == j) {
                    sum = sum + arr[i][j];
                }
            }
        }

        printf("Sum is: %d", sum);

        return 0;
}
```

Output:-

```
Sum is: 132
```

16. Write a C program to sum of all even element from an array.

```
#include<stdio.h>

int main() {
        int arr[100], n, i, sum = 0;

        printf("Please enter size of an Array: ");
        scanf("%d", &n);
```

```
        for (i=0; i<n; i++) {
                printf("Please enter element of array %d: ",i);
                scanf("%d", &arr[i]);
        }

        for (i=0; i<n; i++) {
                if (arr[i] %2 == 0) {
        sum = sum + arr[i];
      }
        }

        printf("Sum of Even Number is: %d", sum);

        return 0;
}
```

Output:-

```
Please enter size of an Array: 5
Please enter element of array 0: 20
Please enter element of array 1: 30
Please enter element of array 2: 33
Please enter element of array 3: 55
Please enter element of array 4: 10
Sum of Even Number is: 60
--------------------------------
```

17. Write a C program to find average of an element from an array.

```
#include<stdio.h>

int main() {
        int arr[100], n, i;
        float average, sum = 0;

        printf("Please enter size of an Array: ");
```

```
        scanf("%d", &n);

        for (i=0; i<n; i++) {
                printf("Please enter element of array %d: ",i);
                scanf("%d", &arr[i]);
        }

        for (i=0; i<n; i++) {
    sum = sum + arr[i];
    average = sum/n;
        }

        printf("Sum of Average Number is: %.2f", average);

        return 0;
}
```

Output:-

```
Please enter size of an Array: 5
Please enter element of array 0: 10
Please enter element of array 1: 30
Please enter element of array 2: 33
Please enter element of array 3: 55
Please enter element of array 4: 95
Sum of Average Number is: 44.60
```

18. Write a C program to count number of students in each group (0-9, 10- 19, 20-29 .... 90-99, 100-100) for the given students marks.
Marks: 85, 66, 37, 45, 68, 23, 99, 100, 81, 70, 42, 55, 68, 77, 96, 18

```
#include<stdio.h>

int main() {
        int arr[16] = {85, 66, 37, 45, 68, 23, 99, 100, 81, 70, 42, 55, 68, 77, 96, 18};
        int n, i;
```

```
int count[]={0,0,0,0,0,0,0,0,0,0,0};


for (i=0; i<n; i++) {
        if (arr[i] > 0 && arr[i] < 9) {
                count[0]++;
        } else if (arr[i] > 10 && arr[i] < 19) {
                count[1]++;
        } else if (arr[i] > 20 && arr[i] < 29) {
                count[2]++;
        } else if (arr[i] > 30 && arr[i] < 39) {
                count[3]++;
        } else if (arr[i] > 40 && arr[i] < 49) {
                count[4]++;
        } else if (arr[i] > 50 && arr[i] < 59) {
                count[5]++;
        } else if (arr[i] > 60 && arr[i] < 69) {
                count[6]++;
        } else if (arr[i] > 70 && arr[i] < 79) {
                count[7]++;
        } else if (arr[i] > 80 && arr[i] < 89) {
                count[8]++;
        } else if (arr[i] > 90 && arr[i] < 99) {
                count[9]++;
        } else if (arr[i] > 100) {
                count[10]++;
        }
}
```

```
        printf("0 to 9: %d\n", count[0]);
        printf("10 to 19: %d\n", count[1]);
        printf("20 to 29: %d\n", count[2]);
        printf("30 to 39: %d\n", count[3]);
        printf("40 to 49: %d\n", count[4]);
        printf("50 to 59: %d\n", count[5]);
        printf("60 to 69: %d\n", count[6]);
        printf("70 to 79: %d\n", count[7]);
        printf("80 to 89: %d\n", count[8]);
        printf("90 to 99: %d\n", count[9]);
        printf("100: %d", count[10]);

        return 0;
}
```

Output:-