**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY, Kattankulathur**





**School of Computing**

**21CSC201J – Data Structures and Algorithms**

**Topic: Array Implementation of Lists**

**Activity: Simple Programming Practice**

**1. Find the sum and average of the elements in an array**

#include <stdio.h>

int main() {

int n, sum = 0;

printf("Enter number of elements: ");

scanf("%d",&n);

int arr[n];

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

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

sum += arr[i];

}

float avg = (float)sum/n;

printf("Sum = %d\n", sum);

printf("Average = %.2f\n", avg);

return 0;

}

**2. Given a set of elements, find the Armstrong numbers**

#include <stdio.h>

#include <math.h>

int main() {

int n;

printf("Enter number of elements: ");

scanf("%d",&n);

int arr[n];

for(int i=0;i<n;i++) scanf("%d",&arr[i]);

printf("Armstrong numbers: ");

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

int num = arr[i], sum = 0, temp = num, digits = 0;

while(temp > 0){

digits++;

temp /= 10;

}

temp = num;

while(temp > 0){

int d = temp % 10;

sum += pow(d, digits);

temp /= 10;

}

if(sum == num)

printf("%d ", num);

}

return 0;

}

**3. Decimal to Octal Conversion**

#include <stdio.h>

int main() {

int dec, oct[50], i=0;

printf("Enter a decimal number: ");

scanf("%d",&dec);

while(dec != 0){

oct[i++] = dec % 8;

dec /= 8;

}

printf("Octal: ");

for(int j=i-1;j>=0;j--)

printf("%d", oct[j]);

return 0;

}

**4. Sum of even numbers in an array**

#include <stdio.h>

int main() {

int n, sum=0;

printf("Enter number of elements: ");

scanf("%d",&n);

int arr[n];

for(int i=0;i<n;i++) scanf("%d",&arr[i]);

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

if(arr[i] % 2 == 0)

sum += arr[i];

printf("Sum of even numbers = %d\n", sum);

return 0;

}

**5. Search an element in an array**

#include <stdio.h>

int main() {

int n, key, found=0;

printf("Enter number of elements: ");

scanf("%d",&n);

int arr[n];

for(int i=0;i<n;i++) scanf("%d",&arr[i]);

printf("Enter element to search: ");

scanf("%d",&key);

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

if(arr[i] == key){

printf("Element %d found at position %d\n", key, i+1);

found = 1;

break;

}

}

if(!found) printf("Element not found\n");

return 0;

}