**Department of Electrical and Computer Engineering, NSU**

**CSE 115L: Fundamentals of Computer Programming (Section 4)**

**Lab 10 (Array), Faculty: Rsl**

An array is a group (or collection) of same data types.

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| **Basic syntax for 1-dimensional array** | **Initialization of array** |
| DataType ArrayName [Array size]  Example:  double balance[5];  The above line generates 5 consecutive empty space in memory of size double.    Here the starting index is 0 and the last index is arraySize – 1 i.e in the above case 5-1=4 | double balance[] = {1000.0, 2.0, 3.4, 7.0, 50.0};    Above is the memory representation of the initialized array.  To access the elements at index 1 we use the array name[index] format.  Example: balance[1] will access the value 2.0 |

**Array Declaration, Input and output**

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| **Example 1(declaration & initialization)** | **Example:2 (Taking input from user)** |
| #include<stdio.h>  int main()  {  int a[5]={2,4,8,3,5};  printf("Element at a[0]: %d\n",a[0]);  printf("Element at a[1]: %d\n",a[1]);  printf("Element at a[2]: %d\n",a[2]);  printf("Element at a[3]: %d\n",a[3]);  printf("Element at a[4]: %d\n",a[4]);  return 0;  } | #include<stdio.h>  int main()  {  float num[2];  printf("Enter 2 floating numbers: ");  scanf("%f",&num[0]);  scanf("%f",&num[1]);  printf("First number at num[0]: %.2f\n",num[0]);  printf("Second number at num[1]: %.2f\n",num[1]);  return 0;  } |

**Taking input array elements using loop and accessing it**

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| **Example: 3** | **Example: 4( calculate the sum of n numbers)** |
| #include<stdio.h>  int main()  {  int size;  printf("Enter the length of the array: ");  scanf("%d",&size);  int i, arr[size];  for(i=0; i<size; i++)  {  printf("Enter elements arr[%d]:",i);  scanf("%d",&arr[i]);  }  printf("Printing the array:\n");  for(i=0; i<size; i++)  {  printf("arr[%d]: %d\n",i,arr[i]);  }  return 0;  } | #include<stdio.h>  int main()  {  int size;  printf("Enter the length of the array: ");  scanf("%d",&size);  int i=0, arr[size];  while(i<size)  {  printf("Enter elements arr[%d]:",i);  scanf("%d",&arr[i]);  i++;  }  printf("Calculating the sum of elements:\n");  int sum=0;  for(i=0; i<size; i++)  {  sum=sum+arr[i];  }  printf("The sum of elements is: %d\n",sum);  return 0;  } |

**Passing array as function arguments**

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| #include<stdio.h>  void displayChar(char a[],int size);  int main()  {  int len,i;  printf("Enter size of character array:");  scanf("%d",&len);  char a[len];  for(i=0; i<len; i++)  {  fflush(stdin);  printf("Enter character at a[%d]:",i);  scanf("%c",&a[i]);  }  displayChar(a,len);  return 0;  } | void displayChar(char a[],int size)  {  int j;  for(j=0; j<size; j++)  printf("Elements at a[%d]:%c\n",j,a[j]);  } |

**Task (10 marks)**

1. Create an array of integer of size given by the user and fill it with values. Your task is to reverse the element of the arrays with the help of another array which will store the reverse array.

