

Array

- 1) Write a program to find average and also find total no. of odd, even, prime and palindrome number available in an array of 30 user defined numbers?
- 2) Write a program to find average of the numbers available in left and right side of the number required by user if available in an array of 10 user defined number otherwise replace the item of the array placed in middle position with the number required by user and calculate output?
- 3) Write a program to sort 10 numbers in ascending order and find the sum of product of 2nd smallest and 3rd largest number?
- 4) Write a program to sort 10 numbers in descending order and average of 3rd largest and 4th smallest number in an array of 10 user defined numbers?
- 5) Write a program to find summation, subtraction and multiplication of two 3X4 matrices?
- 6) Write a program to determinant and inverse of a 3X3 matrices?
- 7) Write a program to find transpose of a 3X4 matrices?

class and object

- 1) Write a program to create simple calculator for addition, subtraction, division, multiplication, modulus, factorial, gcd, lcm, power, square root, cube root using class and object?
- 2) Write a program to give information about any number such as whether it is even odd, prime or not prime, or positive or negative, palindrome or not using class and object?
- 3) Write a program to find area and perimeter of rectangle using class and object?
- 4) Write a program to find area and perimeter of square using class and object?
- 5) Write a program to find area and perimeter of triangle having 3 sides using class and object?
- 6) Write a program to display type of triangle using sides of triangle?
- 7) Write a java program to create banking application to perform following using using class and object?
 - a) Initialize with initial balance Rs 3000
 - b) Deposit amount if balance is more than 1000 otherwise take Rs 100 as penalty for deposit
 - c) Withdraw amount if balance is more than 1000 otherwise alert user for low balance
 - d) check for balance
- 8) Write a program to search for a user defined number in array of 20 numbers using linear search and binary search using class and object? Allow user to choose searching method.
- 9) Write a program to implement stack and perform following using class and object?
 - a) create an stack of size 10 using array
 - b) insert 10 elements into stack using push and isfull method
 - c) find factorial of difference between largest and smallest element of stack
 - d) search any user defined element in stack using peak method
 - e) delete 3 elements from stack using pop and isempty method
 - f) display remaining element of stack
- 10) Write a program to implement queue and perform following using class and object?
 - a) create an queue of size 10 using array
 - b) insert 10 elements into queue using insert method
 - c) replace even numbers available in queue with nearest prime numbers
 - d) display number of odd and prime numbers.
 - e) delete 3 elements from queue using delete method
 - f) display remaining element of queue.

- 11) Write a program to swap two numbers without using 3rd variable and with using 3rd variable using class and object?

Polymorphisim

- 1) Write a program to find area and perimeter of circle,square,rectangle and triangle using method overloading?
2) Write program to display following pattern using method overloading and constructor overloading?

Odd number based pyramid starts from value n received from user

```
      n+1
    n+3  n+6
  n+5  n+10 n+15
n+7  n+14 n+21 n+28
```

even number based pyramid starts from value n received from user

```
      n+2
    n+4  n+6
  n+6  n+10 n+14
n+8  n+14 n+20 n+26
```

user defined character suppose entered character is k

```
      k
    k  k
  k  k  k
k  k  k  k
```

- 3) Write a program to sort 10 numbers in the array using following sorting algorithm and method overloading?
a) merge sort
b) quick sort
c) heap sort
4) Write a program to calculate interest that may be simple or compound using method overloading?
5) Write a program to override sum method if arguments are numbers than it will add numbers or string than concat two strings using constructor overloading?
6) Write a program to check whether a number or string is palindrome or not using method overloading?
7) Write a program to find volume of rectangle and square box using constructor overloading?