

Worksheet

Name:
Roll No: Class: Section:
Date:

CONSTRUCTORS

Chapter-12

1. Answer the following.

- (a) Write a program by using a class with the following specifications:

Class name — Calculate

Instance variables:

1. int num
2. int f
3. int rev

Member Methods:

1. Calculate(int n) — to initialize num with n, f, and rev with 0 (zero)
2. int prime() — to return 1, if number is prime
3. int reverse() — to return reverse of the number
4. void display() — to check and print whether the number is a prime palindrome or not

- (b) The population of a country in a particular year can be calculated by:

$p \times (1 + r/100)$ at the end of the year 2000, where p is the initial population and r is the growth rate. Write a program by using a class to find the population of the country at the end of each year from 2001 to 2007. The Class has the following specifications:

Class name — Population

Data Members — float p,r

Member Methods:

1. Population(int a, int b) — Constructor to initialize p and r with a and b respectively.
2. void print() — to calculate and print the population of each year from 2001 to 2007.

- (c) Write a program in Java to find the roots of a quadratic equation $ax^2 + bx + c = 0$ with the following specifications:

Class name — Quad

Data Members — float a,b,c,d (a,b,c are the coefficients & d is the discriminant), r1 and r2 are the roots of the equation.

Member Methods:

1. quad(int x,int y,int z) — to initialize a=x, b=y, c=z, d=0
2. void calculate() — Find $d=b^2-4ac$

If $d < 0$ then print "Roots not possible" otherwise find and print:

$$r1 = (-b + \sqrt{d}) / 2a$$

$$r2 = (-b - \sqrt{d}) / 2a$$

2. Give answers to the following questions.

- (a) How much storage space does a class type variable (object) restore for itself?
- (b) How many constructors can a class have?
- (c) What is the difference if a constructor is defined with the private or protected access from the onedefined with the public access.