Write a C Program for the following problem statements (Functions without arguments and without return type)

1. check whether the year is Leap year

**#include <stdio.h>**

**void leap();**

**int main() {**

**leap();**

**return 0;**

**}**

**void leap(){**

**int year;**

**printf("enter a valid year : ");**

**scanf("%d", &year);**

**if (year % 400 == 0) {**

**printf("%d is a leap year", year);**

**}**

**else if (year % 100 == 0) {**

**printf("%d is not a leap year", year);**

**}**

**else if (year % 4 == 0) {**

**printf("%d is a leap year", year);**

**}**

**else {**

**printf("%d is not a leap year", year);**

**}**

**}**

1. count number of digits in a number

**#include <stdio.h>**

**void count();**

**int main() {**

**count();**

**return 0;**

**}**

**void count(){**

**int num, rem, count=0;**

**printf("enter a number: ");**

**scanf("%d", &num);**

**while(num!=0){**

**count++;**

**num = num/10;**

**}**

**printf("the number of digits are: %d", count);**

**return 0;**

**}**

**b)Functions without arguments and with return type**

**check Armstrong number or not**

**#include <stdio.h>**

**int armstrong();**

**int main() {**

**int flag;**

**flag = armstrong();**

**if(flag == 1){**

**printf("armstrong");**

**}**

**else{**

**printf("not armstrong");**

**}**

**return 0;**

**}**

**int armstrong(){**

**int num, rem, temp, sum=0;**

**printf("enter a number: ");**

**scanf("%d", &num);**

**temp = num;**

**while(num!=0){**

**rem = num%10;**

**sum = sum + (rem\*rem\*rem);**

**num = num/10;**

**}**

**if(sum == temp){**

**return 1;**

**}**

**else{**

**return 0;**

**}**

**}**

**Convert temperature Fahrenheit to Celsius**

**#include <stdio.h>**

**int ftoc();**

**int main() {**

**float c;**

**c = ftoc();**

**printf("%2f", c);**

**return 0;**

**}**

**int ftoc(){**

**float f, celsius;**

**printf("enter a temp in fahrenheit: ");**

**scanf("%f", &f);**

**celsius = (f - 32) \* 5 / 9;**

**return celsius;**

**}**

1. **Functions with arguments and without return type**

**check prime number or not**

**#include <stdio.h>**

**void prime(int n);**

**int main() {**

**int n;**

**printf("enter a number:");**

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

**if(n>1){**

**prime(n);**

**}**

**else if(n==1){**

**printf("1 is a special number");**

**}**

**else{**

**printf("invalid!!");**

**}**

**return 0;**

**}**

**void prime(int n){**

**int i, flag=0;**

**for(i=2; i<=n/2; i++){**

**if(n%i == 0){**

**flag = 1;**

**break;**

**}**

**}**

**if(flag == 1){**

**printf(" not prime!!");**

**}else{**

**printf("prime!!");**

**}**

**}**

**find all roots of the quadratic equation**

**#include<stdio.h>**

**#include<math.h>**

**void root(float x, float y, float z);**

**void main()**

**{**

**float x, y, z, det, root1, root2, real, img;**

**printf("\n Enter the value of coefficient x, y and z: \n ");**

**scanf("%f %f %f", &x, &y, &z);**

**root(x, y, z);**

**}**

**void root(float x, float y, float z){**

**float det, root1, root2, real, img;**

**det = y \* y - 4 \* x \* z;**

**if (det > 0)**

**{**

**root1 = (-y + sqrt(det)) / (2 \* x);**

**root2 = (-y + sqrt(det)) / (2 \* x);**

**printf("\n Value of root1 = %.2f and value of root2 = %.2f", root1, root2);**

**}**

**else if (det == 0)**

**{**

**root1 = root2 = -y / (2 \* x);**

**printf("\n Value of root1 = %.2f and Value of root2 = %.2f", root1, root2);**

**}**

**else {**

**real = -y / (2 \* x);**

**img = sqrt(-det) / (2 \* x);**

**printf("\n value of root1 = %.2f + %.2fi and value of root2 = %.2f - %.2fi ", real, img, real, img);**

**}**

**}**

**Functions with arguments and with return type**

**calculate factorial of a number**

**#include <stdio.h>**

**int fact(int a);**

**int main()**

**{**

**int num, factorial;**

**printf("enter a number: ");**

**scanf("%d", &num);**

**factorial = fact(num);**

**printf("the factorial of %d is %d", num, factorial);**

**return 0;**

**}**

**int fact(int a){**

**int fact = 1, i;**

**for(i=1; i<=a; i++){**

**fact = fact \* i;**

**}**

**return fact;**

**}**

**count number of digits in a number**

**#include <stdio.h>**

**int count(int a);**

**int main()**

**{**

**int num;**

**printf("enter a number: ");**

**scanf("%d", &num);**

**printf("the number of digits in %d is %d", num, count(num));**

**return 0;**

**}**

**int count(int a){**

**int count=0;**

**while(a>0){**

**a = a/ 10;**

**count ++;**

**}**

**return count;**

**}**

g)Recursive Functions

**to Print Fibonacci Series**

**#include <stdio.h>**

**int fibonacci(int n){**

**if(n<=1){**

**return n;**

**}**

**else{**

**return fibonacci(n-1) + fibonacci(n-2);**

**}**

**}**

**int main()**

**{**

**int n, c=0, i;**

**printf("enter a number:");**

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

**for(i=1; i<=n; i++){**

**printf("%d,", fibonacci(c));**

**c++;**

**}**

**return 0;**

**}**