**CSE 115 Lab on nested loop (part3) – Ara2**

1. **C program to print all perfect numbers between 1 to n:**

#include <stdio.h>

void main()

{

int i, j, n, sum = 0;

printf("Enter any number to print perfect number up to: ");

scanf("%d", &n);

printf("\nAll Perfect numbers between 1 to %d:\n", n);

//Iterates from 1 to n and print if it is perfect number

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

{

sum = 0;

// print i if the current value of i is a Perfect number

for(j=1; j<i; j++)

{

if(i%j==0)//if j is a divisor of i then add j with sum

{

sum += j;

}

}

//now sum = (sum of all proper divisors of i)

if(sum == i) // If the current value of i is Perfect

printf("%d, ", i);

}

}//main

**2. C program to print all prime numbers between 1 and n.**

|  |  |
| --- | --- |
| #include<stdio.h>  #include<conio.h>    int main(){    int N, i, j, isPrime, n;    printf("Enter the value of N\n");  scanf("%d",&N);    /\* For each number between 2 to N, check if it is prime number or not \*/  printf("Prime no. from %d to %d", 1, N); | for(i = 2; i <= N; i++){  isPrime = 0;  // Check if i is prime  for(j = 2; j <= i/2; j++){  if(i % j == 0){  isPrime = 1;  break;  }  }    if(isPrime==0)  printf("%d ",i);  }  } |

**3. Write a program that prints first n prime numbers (n is input). E.g. for n = 5 it should print: 2,3,5,7,11,**

|  |
| --- |
| #include<stdio.h>  void main()  {  int n, i = 2, count=0, j, isPrime;  printf("Enter n: ");  scanf("%d",&n);  printf("First %d prime numbers: ", n);  while (count < n)  {  //if current value of i is a prime no., then print it  isPrime = 1; //let the current value of i is a prime no.  for ( j = 2 ; j <= i/2; j++ )  {  if ( i%j == 0 ){ //if i has a divisor then i isn’t prime  isPrime = 0; //so assign 0 to isPrime to indicate this  break;  }  }//for  if (isPrime)  {  printf("%d, ",i); //move this outside while loop to print n-th prime  count++;  }  i++;  }//while  }//main |

**Exercise:**

1. **Write a C program to print all prime numbers between *1* and *n* in reverse order (*n* is an input).**

**Sample input/output:**

Enter n: **20**

All prime numbers between 1 and 20 (in reverse order):19, 17, 13, 11, 7, 5, 3, 2,

1. **Write a C program to compute and print the sum of all prime numbers between *m* and *n* (*m, n* are inputs)**
2. **Write a C program to print the first *n* perfect numbers where *n* is an input.**
3. **Write a C program to compute and print the sum of first *n* perfect numbers.**
4. **Write a C program to print the *n*-th perfect number where *n* is an input.**

**Assignment:**

1. **Write a C program to print all palindrome numbers between m and n (m, n are inputs). For e.g. 121 is a palindrome since the reverse of 121 = 121; but 152 is not a palindrome.**
2. **Write a C program to compute and print the sum of palindrome numbers between m and n**
3. **Write a C program to print the first n palindrome numbers where n is an input.**