

WINTER SEMESTER 2016

CSE2003: DATA STRUCTURES AND ALGORITHMS (EMBEDDED LAB) SLOT: L51+L52

FACULTY: THENDRAL.P

ASSIGNMENT-1

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3. Find all the odd numbers between m & n (take m and n from user) and find the sum of their cubes. Also find all the even numbers between m & n and find the sum of their squares. (Check whether m and n are 3 digit numbers and the difference between them should be >100).

Code:

```
#include<stdio.h>
#include<string.h>
main()
{
    char l1[3];
    printf("Enter the value of m:");
    gets(l1);
    printf("Enter the value of n:");
    char l2[3];
    gets(l2);
    int sum1=0, sum2=0;
    printf("Even Numbers\tOdd Numbers\n");
    int m=atoi(l1);
    int n=atoi(l2);
    if(n-m>100){
        int i=m+1;
        while(i<n){
            if(i%2==0){
                printf("%d",i);
                sum1=sum1+i*i;
            }
            else{
                printf("\t\t%d\n",i);
                sum2=sum2+i*i*i;
            }
            i=i+1;
        }
        printf("\nSum of squares of Even Numbers: %d\n",sum1);
        printf("Sum of cubes of Odd numbers: %d",sum2);
    }
    else
```

```
printf("Invalid input");
}
```

Output:

```

F:\Data Structures\DSA_Assign_1.exe
Enter the value of n:600
Even Numbers    Odd Numbers
402             401
404             403
406             405
408             407
410             409
412             411
414             413
416             415
418             417
420             419
422             421
424             423
426             425
428             427
430             429
432             431
434             433
436             435
438             437
440             439
442             441
444             443
446             445
448             447
450             449
452             451
454             453
456             455
458             457
460             459
462             461
464             463
466             465
468             467
470             469
472             471
474             473
476             475
478             477
480             479
480             481

Select F:\Data Structures\DSA_Assign_1.exe
520             529
530             531
532             533
534             535
536             537
538             539
540             541
542             543
544             545
546             547
548             549
550             551
552             553
554             555
556             557
558             559
560             561
562             563
564             565
566             567
568             569
570             571
572             573
574             575
576             577
578             579
580             581
582             583
584             585
586             587
588             589
590             591
592             593
594             595
596             597
598             599

Sum of squares of Even Numbers: 25073400
Sum of cubes of Odd numbers: 115048112
-----
Process exited after 7.358 seconds with return value 38
Press any key to continue . . .

```

4. Check whether a given 5 digit number is a palindrome by reversing it using while loop. Also display the difference between them. (Check whether the given number is of 5 digits before proceeding)

Code:

```
#include<stdio.h>

#include<string.h>

main()

{
```

```

char l1[5];
char l2[5];
int i=4;

printf("Enter a 5-digit number:");
gets(l1);

if(strlen(l1)!=5)
printf("Invalid input");
else{
    while(i>=0){
        l2[i]=l1[strlen(l1)-1-i];
        i=i-1;
    }
    if(strcmp(l1,l2)==0)
        printf("This digit is a palindrome.\n");
    else
}
    printf("This digit is not a palindrome.\n");
}
    printf("Difference between the numbers is %d",abs(atoi(l1)-atoi(l2)));

```

Output:

F:\Data Structures\DSA_Assign_1.exe

Enter a 5-digit number:12321

This digit is a palindrome.

Difference between the numbers is 0

Process exited after 2.963 seconds with return value 35

Press any key to continue . . .