



INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

Programming in C and C++ (CSC-101)

Assignment 3

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Q-1) Take an integer number of seconds as input, print the equivalent time in hours, minutes, and seconds as output. The recommended output format is: 7322 seconds is equivalent to 2 hours, 2 minutes, and 2 seconds.

[10 marks]

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question1 - □ ✎
#include <stdio.h>
#include<math.h>

int main() {
    int t ;
    printf("Enter the time(in seconds):");
    scanf("%d", &t);

    int h = t/3600 ;
    int m = (t - h*3600)/60 ;
    int s = t - (h*3600 + m*60);

    printf("Converted Time: %d hours , %d minutes , %d seconds \n",h,m,s);

    return 0;
}
17,0-1 All
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question1 - □ ✎
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question1$ vim q1.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question1$ gcc q1.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question1$ ./a.out
Enter the time(in seconds):7322
Converted Time: 2 hours , 2 minutes , 2 seconds
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question1$
```

Q-2) Write a C program to reverse a 3-digit number without using a loop. [10 marks]

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question2 - □ ✎
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question2$ vim q2.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question2$ gcc q2.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question2$ ./a.out
Enter the number: 456
Reversed Number : 654
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question2$ ./a.out
Enter the number: 698
Reversed Number : 896
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question2$
```

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question2 - □ ✎
#include <stdio.h>
#include <math.h>

int main() {
    int n ;
    printf("Enter the number: ");
    scanf("%d",&n);

    int o , t , h ;
    o = n%10 ;
    t = ((int)(n-o)/10)%10 ;
    h =(int)(n-(10*t)-o)/100 ;

    printf("Reversed Number : %d%d%d \n",o,t,h);
    return 0;
}
```

18,0-1 All

Q-3) Write a C program to print the corresponding Celsius to Fahrenheit. Print as floating point, 3 numbers after decimal point. [10 marks]

$$\text{Formula : } F = (9/5 * C) + 32$$

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3 - □ X
#include<math.h>

int main() {
    float t ;
    printf("Enter the temperature (in Celsius): ");
    scanf("%f",&t);

    float f =((9.0/5)* t) + 32;
    printf("The Value of Temperature (In farenheit) = %0.3f\n",f);

    return 0;
}
~ ~ ~ ~
```

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Bot

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3 - □ X
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3$ vim q3.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3$ gcc q3.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3$ ./a.out
Enter the temperature (in Celsius): 0
The Value of Temperature (In farenheit) = 32.000
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3$ ./a.out
Enter the temperature (in Celsius): 100
The Value of Temperature (In farenheit) = 212.000
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3$ ./a.out
Enter the temperature (in Celsius): 37
The Value of Temperature (In farenheit) = 98.600
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3$ █
```

Q-4) Take the input x, y coordinate of a point, calculate and print the squared distance of the point from the origin. [10 marks]

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question4 - □ ×
#include <stdio.h>
#include<math.h>

int main() {
    double x , y , s ;

    printf("Enter the value of x coordinate:");
    scanf("%lf",&x);
    printf("Enter the value of y coordinate:");
    scanf("%lf",&y);

    s = (pow(x,2)+pow(y,2));

    printf("The Squared distance of point from origin is = %0.2lf\n",s);
    return 0;
}

~
```

18,0-1 All

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question4 - □ ×
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question4$ vim q4.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question4$ gcc q4.c
/usr/bin/ld: /tmp/ccU1p3vP.o: in function `main':
q4.c:(.text+0x8f): undefined reference to `pow'
/usr/bin/ld: q4.c:(.text+0xae): undefined reference to `pow'
collect2: error: ld returned 1 exit status
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question4$ gcc q4.c -lm
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question4$ ./a.out
Enter the value of x coordinate:5
Enter the value of y coordinate:8
The Squared distance of point from origin is = 89.00
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question4$
```

Q-5) Write a program to swap two numbers without using a third variable. [10 marks]

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question5 - □ X
#include <stdio.h>

int main() {
    int a , b;
    printf("Enter the value of a : ");
    scanf("%d",&a);
    printf("Enter the value of b : ");
    scanf("%d",&b);

    a = a + b ;
    b = a - b ;
    a = a - b ;

    printf("Exchanged Values : a = %d , b = %d\n",a,b);

    return 0;
}
```

19,0-1

All

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question5 - □ X
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question5$ vim
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question5$ vim q5.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question5$ gcc q5.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question5$ ./a.out
Enter the value of a : 45
Enter the value of b : 68
Exchanged Values : a = 68 , b = 45
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question5$ ./a.out
Enter the value of a : 87
Enter the value of b : 99
Exchanged Values : a = 99 , b = 87
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question5$ █
```

Q-6) Write a C program to take a 3-digit number as input and print whether the number is an Armstrong number or not. (An Armstrong number is a number for which the sum of the cubes of its digits equals the number itself, e.g., $153 = 1^3 + 5^3 + 3^3$) [10 marks]

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6
-
-
X

#include <stdio.h>
#include <math.h>

int main() {
    int o, t, h, n ;
    printf("Enter the 3-Digit No. : ");
    scanf("%d",&n);

    o = n%10 ;
    t = ((int)(n-o)/10)%10 ;
    h = (n-(t*10)-o)/100.0 ;

    if (n == pow(o,3) + pow(t,3) + pow(h,3)) {printf("The provided number is an Armstrong Number.\n");}
    else if (printf("This number is not an Armstrong number.\n"))

        return 0;
}
~
```

18,0-1 All

```
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6$ cd ../Question6
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6$ vim q6.c
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6$ gcc q6.c
/usr/bin/ld: /tmp/ccf6djpt.o: in function `main':
q6.c:(.text+0x11a): undefined reference to `pow'
/usr/bin/ld: q6.c:(.text+0x143): undefined reference to `pow'
/usr/bin/ld: q6.c:(.text+0x175): undefined reference to `pow'
collect2: error: ld returned 1 exit status
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6$ gcc q6.c -lm
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6$ ./a.out
Enter the 3-Digit No. : 153
The provided number is an Armstrong Number.
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6$ ./a.out
Enter the 3-Digit No. : 407
The provided number is an Armstrong Number.
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6$ ./a.out
Enter the 3-Digit No. : 456
This number is not an Armstrong number.
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question6$
```