



INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

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

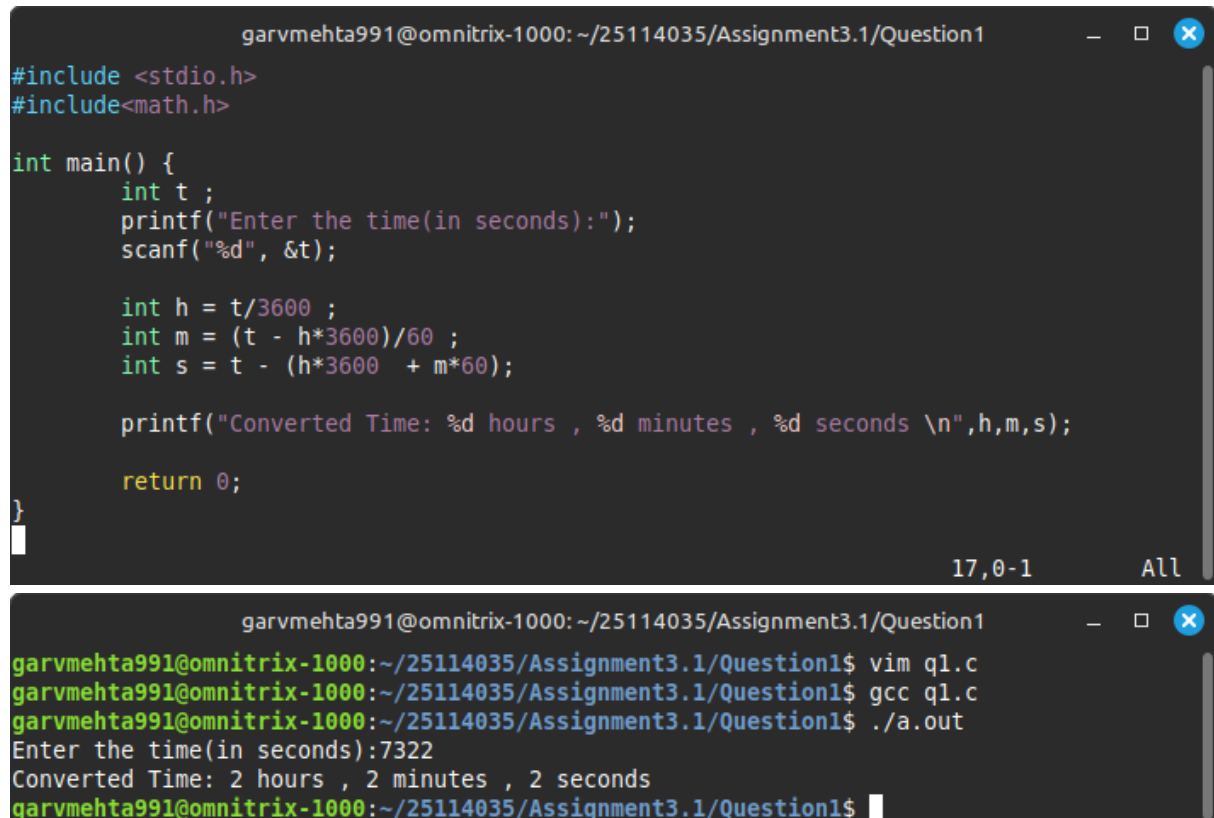
Assignment 3

Garv

25114035

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]



The image shows two terminal windows. The top window displays the source code for a C program that converts seconds into hours, minutes, and seconds. The code uses integer division and subtraction to calculate the values. The bottom window shows the compilation and execution of the program. It uses 'vim' to edit the file, 'gcc' to compile it, and './a.out' to run it. The input is 7322 seconds, and the output is 'Converted Time: 2 hours , 2 minutes , 2 seconds'.

```
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]

Formula : $F = (9/5 * C) + 32$

```
garvmehta991@omnitrix-1000: ~/25114035/Assignment3.1/Question3
#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 fahrenheit) = %.3f\n",f);

    return 0;
}

14,0-1 Bot
```

```
garvmehta991@omnitrix-1000: ~/25114035/Assignment3.1/Question3
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 fahrenheit) = 32.000
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3$ ./a.out
Enter the temperature (in Celsius): 100
The Value of Temperature (In fahrenheit) = 212.000
garvmehta991@omnitrix-1000:~/25114035/Assignment3.1/Question3$ ./a.out
Enter the temperature (in Celsius): 37
The Value of Temperature (In fahrenheit) = 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;
}
```

```
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/ccUlp3vP.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
#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
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
#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 Armst
rong 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/Question2$ 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$
```