OBJECT ORIENTED PROGRAMMING LAB

Operators, Conditional Statements, Loops, Functions, Arrays, Pointers and Structures

ASSIGNMENT # 01

Submitted BY:

Najam Ali Abass

p20-0471)

Submitted to:

MR. MUHAMMAD ABDULLAH ORAKZAI

(Computer Science Instructor)

DEPARTMENT OF SOFTWARE ENGINEERING

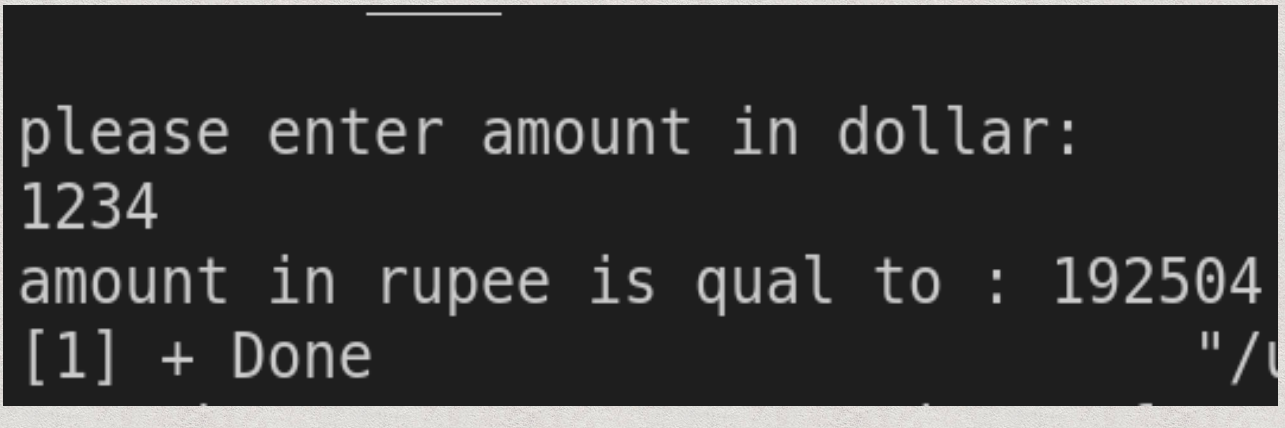
FAST NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCE,PESHAWAR

Session 2020-2024

1) Write a C++ program that will convert dollar to rupees (Dollar to Rupees Conversion Calculator).

```
#include<iostream>
using namespace std;
int main()
{
int dollar;
int convert_dollar;
cout<<"please enter amount in dollar:"<<endl;
cin>>dollar;
convert_dollar=dollar*156;
cout<<"amount in rupee is equal to :
"<<convert_dollar<<endl;
return 0;
}
```

output:

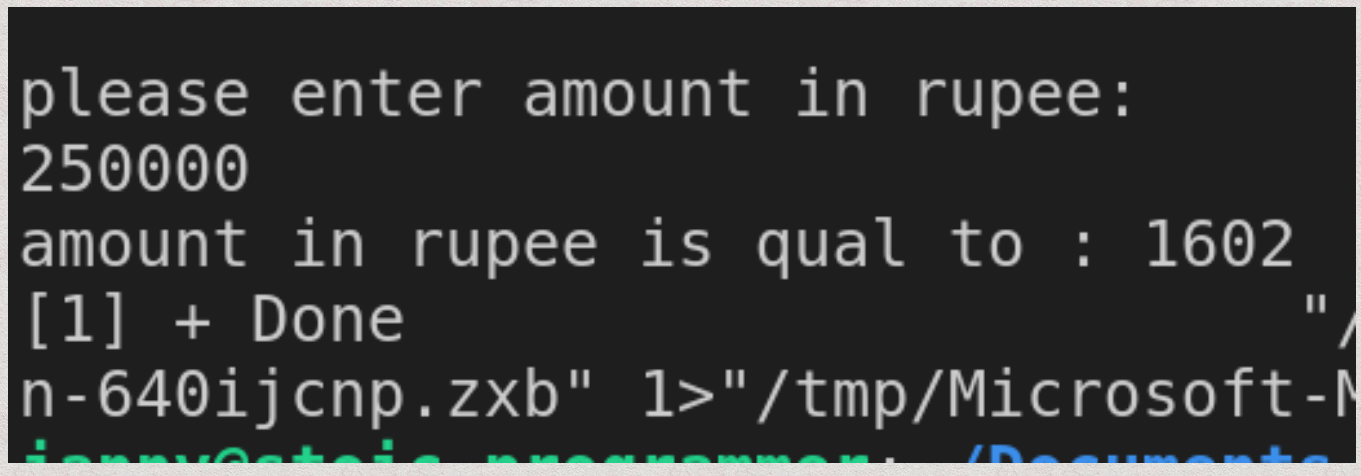


2) Write a C++ program that will convert rupees to dollar (Rupees to Dollar Conversion Calculator).

Source code below:-

```
#include<iostream>
using namespace std;
int main()
{
int rupee;
int convert_rupee;
cout<<"please enter amount in rupee:"<<endl;
cin>>rupee;
convert_rupee=rupee/156;
cout<<"amount in rupee is equal to :
"<<convert_rupee<<endl;
return 0;

}
```

output2:



3) Write a C++ program that will convert centigrade to Fahrenheit.

Source code :-

```
#include<iostream>
using namespace std;
int main()
{
int celcius;
int convert_to_ferenhite;
cout<<"Enter tempreture in celcius"<<endl;
cin>>celcius;
convert_to_ferenhite=(celcius*9/5)+32;
cout<<"tempreture in farenhite
is:"<<convert_to_ferenhite<<endl;
return 0;
}
```

```
Enter tempreture in celcius
62
tempreture in farenhite is:143
[1] + Done
n-6c2r1jwh.mcc" 1>"/tmp/Microsoft
janny@stoic-programmer:~/Document
```

4) Take student name and marks of your 2nd semester from user and then generate DMC which will contain obtained marks out of total and percentage.

```
#include<iostream>
using namespace std;
int main()
{
int obt_marks;
int percentage;
int total_mrks=90;
cout<<"Enter your marks in OOP lab";
cin>>obt_marks;
```

```
percentage=(obt_marks*100)/
total_mrkscout<<obt_marks<<" out of " <<total_mrks<<" \
n your percentage is "<<percentage<<endl;
return 0;
}
```

Output4:-

```
Enter your marks in OOP lab85
85  out of 90
  your percentage is 94
[1] + Done
n-ct8z9wnz.2do" 1>"/tmp/Microsoft
janny@stoic-programmer:~/Document
```

Question#5: lab manual other math functions.

Source code:-

```
#include<iostream>
#include<cmath>

using namespace std;

int main()
{

float x;
cout<<" Enter a number :";
cin>>x;
```

```
cout << "square root is " <<sqrt(x)<<endl;
cout << round(23.4)<<"23.4 is rounded off to"<<endl;
cout << "log of number is "<<log(x)<<endl;
cout<<abs(x) <<"Returns the absolute value of
number"<<endl;
cout<<acos(x) <<" Returns the arccosine of
number"<<endl<<endl;
cout<<asin(x)<< " Returns the arcsine of
number"<<endl<<endl;
cout<<atan(x) <<" Returns the arctangent of
number"<<endl<<endl;
cout <<cos(x) <<" Returns the cosine of
number"<<endl<<endl;
cout<<tan(x)<<"value of tangent thita"<<endl<<endl;
cout<<cosh(x)<<endl<<endl;
cout<<floor(x)<<endl<<endl;
cout<<sin(x)<<endl<<endl;

return 0;
}
```

OUTPUT5 BELOW:-

```
 Enter a number :256
square root is 16
2323.4 is rounded off to
log of number is 5.54518
256Returns the absolute value of number
nan Returns the arccosine of number

nan Returns the arcsine of number

1.56689 Returns the arctangent of number

-0.0397908 Returns the cosine of number

25.1116value of tangent thita

inf

256

-0.999208

[1] + Done                    "/usr/bin/
n-ss6fmrhf.7kv" 1>"/tmp/Microsoft-MIEngine-
janny@stoic-programmer:~/Documents/c plus p
```

CONDITIONAL STATEMEN

P20-0471

QUESTION #1 SOURCE CODE:-

```
#include<iostream>

using namespace std;
int main()
{
int integer;
cout<<"Enter any Integer: "<<endl;
cin>>integer;
if(integer<0)
cout<<integer<< "is a negetive integer"<<endl;
else(integer>0);
cout<<integer<<" is a postive integer"<<endl;

return 0;

}
```

OUTPUT#1:

```
Enter any Integer:
-16
-16  is a negetive integer
[1] + Done
n-gt2svflo.c2l" 1>"/tmp/Micro
janny@stoic-programmer:~/Docu
```

```
Enter any Integer:
12
12 is a postive integer
[1] + Done
n-pys8b5o0.2ql" 1>"/tmp/Micro
janny@stoic-programmer:~/Docu
```

QUESTION#2 SOURCE CODE:-

```
#include<iostream>

using namespace std;

int main()
{
int number;
cout<<"Enter a number :"<<endl;
cin>>number;
if(number%2==0)
cout<<number<<" is an Even number"<<endl;
else
cout<<number<<" is an odd integer"<<endl;


return 0;
}
```

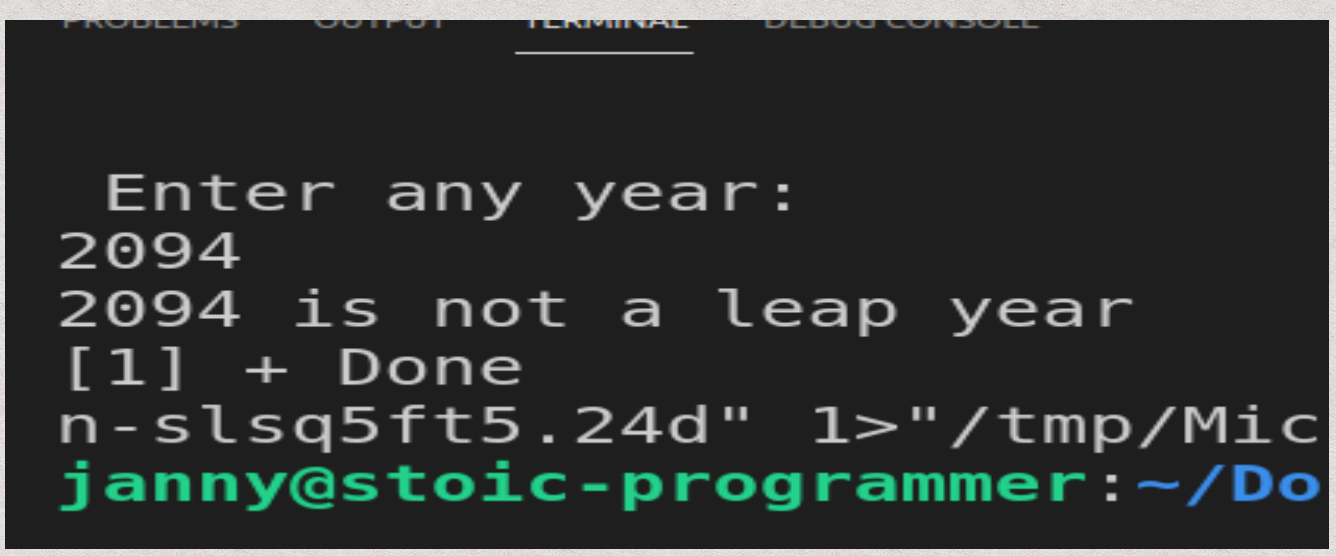
output#2:-

```
Enter a number :
264
264 is an Even number
[1] + Done
n-f951llt7.uwj" 1>"/tmp/Mic
jan                          :~/Do
    Enter a number :
    343
    343  is an odd integer
    [1] + Done
    n-ktxruydc.r5v" 1>"/tmp/Mi
    janny@stoic-programmer:~/D
```

Question3 Source code:- leap year

```
#include<iostream>

using namespace std;

int main()
{
int year;
cout<<" Enter any year:"<<endl;
cin>>year;
if(year%4==0)
cout<<year<<" is a leap year "<<endl;
else
cout<<year<<" is not a leap year"<<endl;

return 0;

}
```

output#3:-



Question 4 Source Code:

```
#include<iostream>

using namespace std;
int main()
{
int num1;
int num2;
cout<<" Enter the first number"<<endl;
cin>>num1;
cout<<" enter the second numer "<<endl;
cin>>num2;
if(num1>num2)
cout<<num1<<" is greater than"<<num2<<endl;
else
cout<<num2<<" is greater than "<<num1<<endl;
return 0;

}
```

output#4:-

```
 Enter the first number
143
 enter the second numer
431
431 is greater than 143
[1] + Done
n-cbvextg8.zvd" 1>"/tmp/Micr
janny@stoic-programmer:~/Doc
```

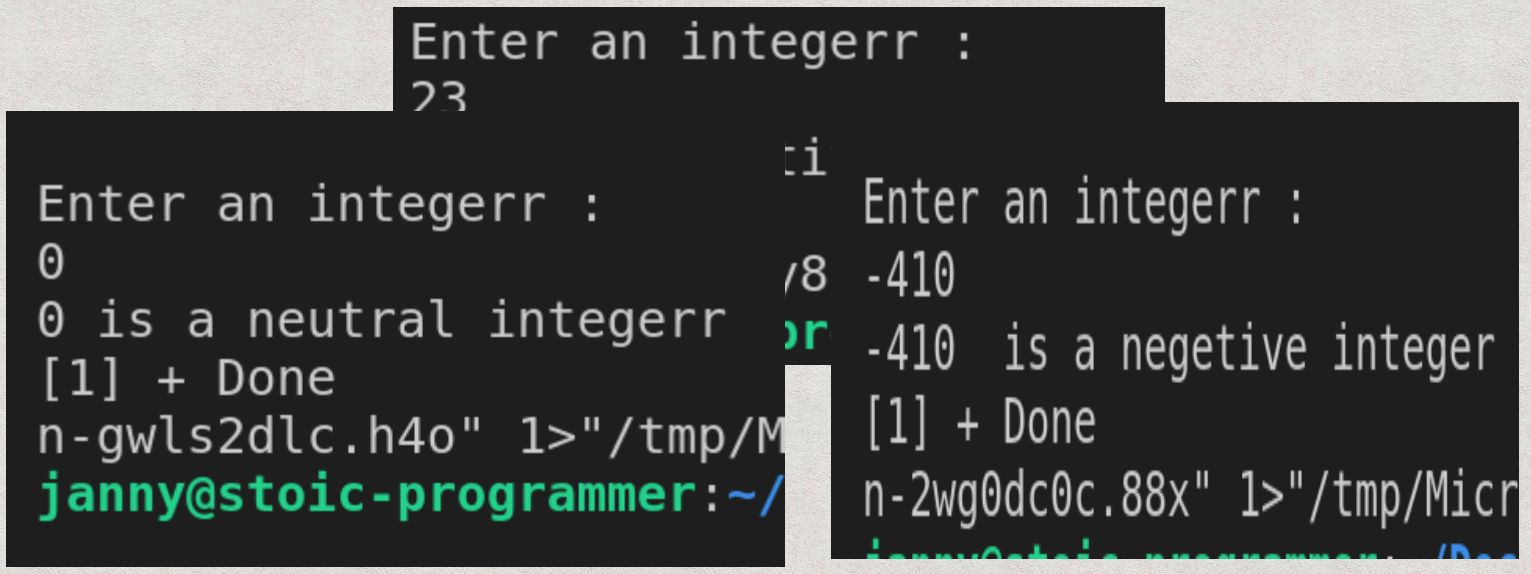
If else-if and else:-

Question#1 Source Code:-

```
#include<iostream>

using namespace std;

int main()
{
int integer;

cout<<"Enter an integerr :"<<endl;
cin>>integer;

if(integer==0)
cout<<integer<<" is a neutral integerr"<<endl;

else if(integer>0)
cout<<integer<<" is an postive integer"<<endl;
```

```
else
cout<<integer<<" is a negetive integer"<<endl;

return 0;
}
```

OUTPUT#1:-



Question#2:- Source code

```
#include<iostream>

using namespace std;
```

```
int main()
{
int tempreture;

cout<<"Enter tempreture in celcius:"<<endl;
cin>>tempreture;

if(tempreture<0)
cout<<" It is too cold outside stay home "<<endl;

else if(tempreture<10 && tempreture>0)
cout<<"it is cold outside but you will love it"<<endl;

else if(tempreture<20 && tempreture>10)
cout<<"weather is mild nor hot not too cold enjoy this
weather"<<endl;
else
cout<<" the weather is very hot todayy stay home"<<endl;
return 0;}
```

OUtput2:-

```
Enter tempreture in celcius:
56
 the weather is very hot todayy stay home
[1] + Done                       "/usr/bin
n-u55g6xgy.cjq" 1>"/tmp/Microsoft-MIEngine
janny@stoic-programmer:~/Documents/c plus
```

Question #3:- Source code

```
#include<iostream>

using namespace std;

int main()
{
int marks;

cout<<" please enter your marks"<<endl;
cin>>marks;

if(marks<=100 && marks>=90)
cout<<" Your grade is A+"<<endl;
else if(marks<90 && marks>=80)
cout<<" Your grade is A"<<endl;
else if(marks<80 && marks>=70)
cout<<" Your grade is B"<<endl;
else if(marks<70 && marks>=60)
cout<<" Your grade is C"<<endl;
else if(marks<60 && marks>=50)
cout<<" Your grade is D"<<endl;
else
cout<<" OOPs! Your grade is F"<<endl;
return 0;
}
```

Output#3:-

```
 please enter your marks
34
 OOPs! Your grade is F
[1] + Done
n-ielpuo5q.3g4" 1>"/tmp/Micro
janny@stoic-programmer:~/Docu
```

Question #4 :- Source code

```
#include<iostream>

using namespace std;

int main()
{
char oprator;
int num1 ,num2;
cout<<"Enter first number"<<endl;
cin>>num1;
cout<<" Enter second number"<<endl;
cin>>num2;cout<<"Enter the operator for your
operation"<<endl;cin>>oprator;

if(oprator=='+')
cout<<" Sum of two number is = "<<num1+num2<<endl;
else if(oprator=='-')
```

```
cout<<"The difference btween 2 numbers is= "<<num1-
num2<<endl;
else if(oprator=='*')
cout<<"The product of given nums is =
"<<num1*num2<<endl;
else if(oprator=='/')
cout<<"The quotient of given numbers is =
"<<num1/num2<<endl;
else
cout<<"The remainder of given numbers is =
"<<num1%num2<<endl;


return 0;
}
```

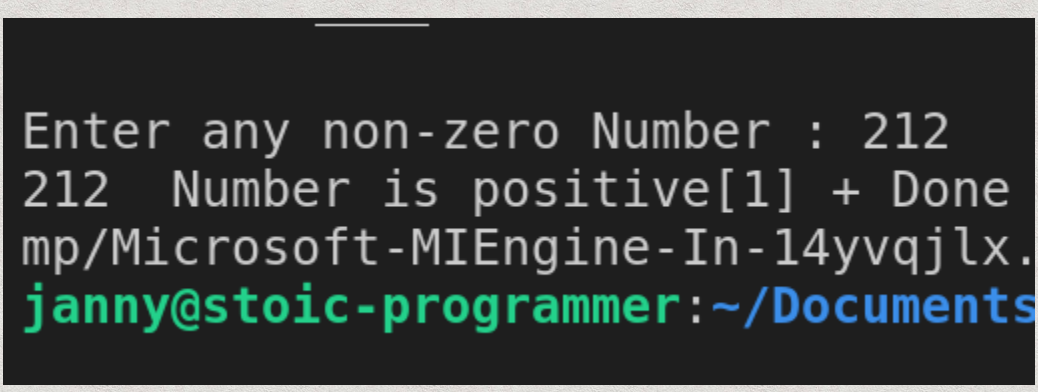
Output:-

```
Enter first number
23
 Enter second number
31
Enter the operator for your operation
*
The product of given nums is = 713
[1] + Done                          "/usr
n-m9jbhekl.6p7" 1>"/tmp/Microsoft-MIEn
janny@stoic-programmer:~/Documents/c p
```

Question #5:- Source Code Conditional Operator

```
#include<iostream>
using namespace std;

int main()
{
int number;
cout<<"Enter any non-zero Number : ";
cin>>number;
(number>0)?cout<< number <<" Number is
positive":cout<<"Number is negative";
return 0;
}
```

Output#5:

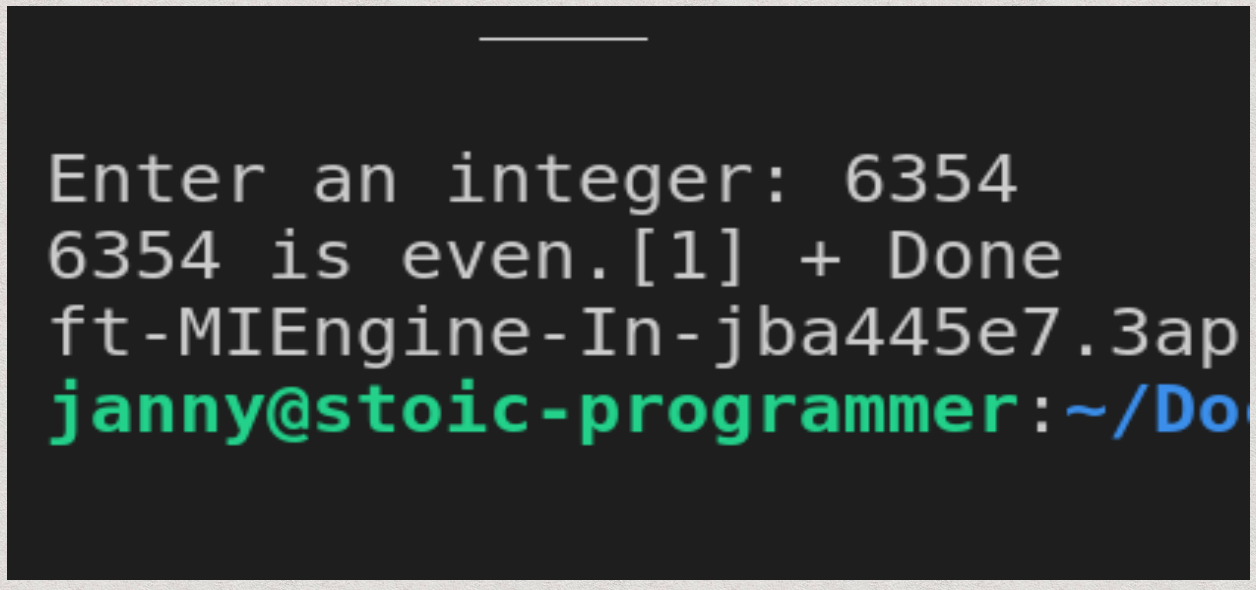


Question#6:- Source Code

```
#include <iostream>
using namespace std;

int main()
{
```

```
int n;
cout << "Enter an integer: ";
cin >> n;
(n % 2 == 0) ? cout << n << " is even." : cout << n << " is
odd.";
return 0;
}
```

Output#6:-



Switch Statements

Question #1:- Source Code

```
# include <iostream>
using namespace std;

int main()
{
char op;
float num1, num2;

cout << "Enter operator either + or - or * or /: ";
cin >> op;

cout << "Enter two operands: ";
cin >> num1 >> num2;

switch(op)
{
case '+':
cout << num1+num2;
break;

case '-':
cout << num1-num2;
break;
case '*':
cout << num1*num2;
break;

case '/':
cout << num1/num2;
break;

default:
// If the operator is other than +, -, * or /, error message is shown
```

```
cout << "Error! operator is not correct";
break;
}
return 0;
}
```

Output #1:-

```
Enter operator either + or - or * or /: /
Enter two operands: 54
9
6 is the quotient of two numbers[1] + Done
rm} 0<"/tmp/Microsoft-MIEngine-In-e1vpxh7o.
janny@stoic-programmer:~/Documents/c plus p
```

Question #2:- Source Code

```
#include <iostream>
using namespace std;
int main()
{
int n;
cout <<"Month No : ";
cin >> n;
switch(n)
{
case 1:
cout <<"January";
break;
```

```
case 2:
cout <<"February";
break;
case 3:
cout <<"March";
break;
case 4:
cout <<"April";
break;
case 5:
cout <<"May";
break;
case 6:
cout <<"June";
break;
case 7:
cout <<"July";
break;
case 8:
cout <<"August";
break;
case 9:
cout <<"September";
break;
case 10:
cout <<"October";
break;
case 11:
cout <<"November";
break;
case 12:
cout <<"December";
break;
```

```
default:
cout <<"Invalid Month number\n Please try again ....\n";
break;
}
return 0;
}
```

Output #2:-

```
Month No : 8
August[1] + Done
gine-In-fuizyy4r.zz0" 1
janny@stoic-programmer:
```

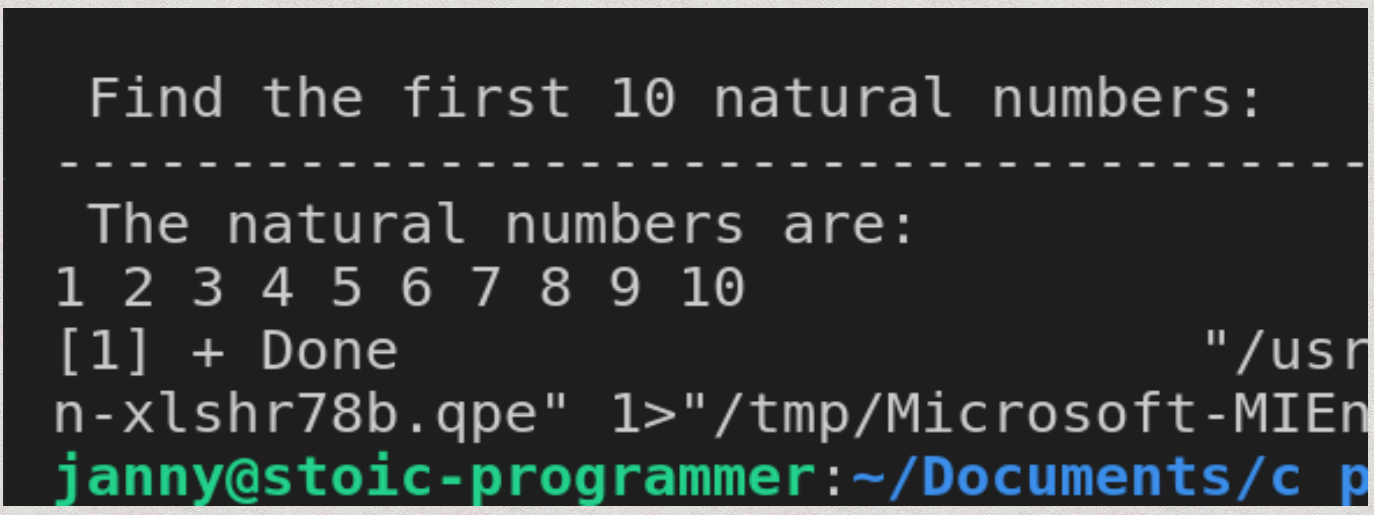
FOR LOOP

Question #1:- Source Code

```
#include<iostream>

using namespace std;

int main()
{
```

```
int i;
cout << "\n\n Find the first 10 natural numbers:\n";
cout << "-------------------------------------\n";
cout << " The natural numbers are: \n";
for (i = 1; i <= 10; i++)
{
cout << i << " ";
}
cout << endl;
}
```

OUTPUT #1:-

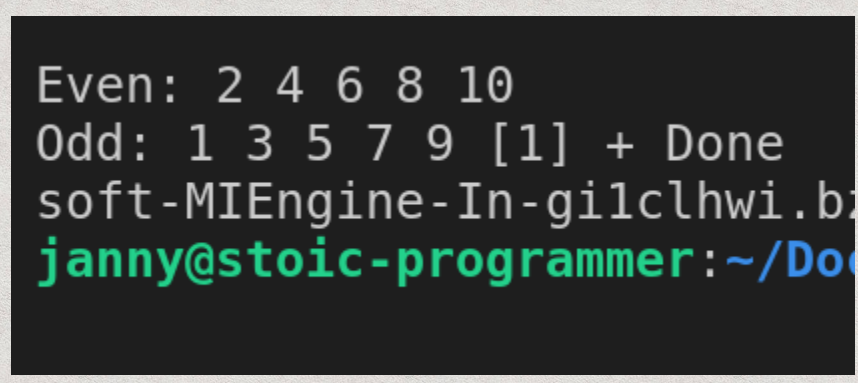


QUESTION #2:- SOURCE CODE

```
// C++ program to print all Even
// and Odd numbers from 1 to N
```

```
#include <bits/stdc++.h>
using namespace std;

void printEvenNumbers(int N)
{
cout << "Even: ";
for (int i = 1; i <= 2 * N; i++) {
if (i % 2 == 0)
cout << i << " ";
}
}
void printOddNumbers(int N)
{
cout << "\nOdd: ";
for (int i = 1; i <= 2 * N; i++) {
if (i % 2 != 0)
cout << i << " ";
}
}
int main()
{
int N = 5;
printEvenNumbers(N);
printOddNumbers(N);
return 0;
}
```

OUTPUT#2:-



QUESTION #3:- SOURCE CODE

```
#include<iostream>

using namespace std;

int main()
{
int number,i;
cout<<"Enter any number of your choice"<<endl;
cin>>number;

for ( i = 1; i < 11; i++)
{
cout<< i*number<<endl;

}
return 0;

}
```

OUTPUT #3:-

```
Enter any number of your choice for its multiple
3
3
6
9
12
15
18
21
24
27
30
[1] + Done                       "/usr/bin/gdb"
n-z3kvgxaj.r0j" 1>"/tmp/Microsoft-MIEngine-Out-o
janny@stoic-programmer:~/Documents/c plus plus$
```

QUESTION #4:- SOURCE CODE

```
#include <iostream>
using namespace std;

int main()
{
int n;
unsigned long long factorial = 1;

cout << "Enter a positive integer: ";
cin >> n;

if (n < 0)
cout << "Error! Factorial of a negative number doesn't exist.";
else {
for(int i = 1; i <=n; ++i) {
factorial *= i;
}
cout << "Factorial of " << n << " = " << factorial;
}

return 0;
}
```

OUTPUT #4:-

```
Enter a positive integer: 12
Factorial of 12 = 479001600[1] + Done
<"/tmp/Microsoft-MIEngine-In-38y8qqvg.
janny@stoic-programmer:~/Documents/c p
```

WHILE LOOP

QUESTION #1:- SOURCE CODE

```
#include<iostream>

using namespace std;

int main()
{
int i=0;

while (i<7)
{
cout<<i<<"\n";
i++;

}
return 0;
}
```

OUTPUT1:-

```
0
1
2
3
4
5
6
[1] + Done
n-zq1wty2y.aiu" 1>"/tmp/
janny@stoic-programmer:~
```

QUESTION#2:-

```
#include<iostream>

using namespace std;

int main()
{
int i=0;

while (i<10)
{
if(i%2==0)
cout<<i<<" is an even number"<<endl;

else
cout<<i<<" is odd number"<<endl;

i++;
}
}
```

OUTPUT2:-

```
0  is an even number
1   is odd number
2  is an even number
3   is odd number
4  is an even number
5   is odd number
6  is an even number
7   is odd number
8  is an even number
9   is odd number
[1] + Done
n-aj77qmcf.d85" 1>"/tmp/M
janny@stoic-programmer:~/
```

QUESTION #3:-

```
#include<stdio.h>
int main()
{
int num, i, fact=1;
printf("Enter the number\n");
scanf("%d",&num);
i=num;
while(i>=1)
{
fact=fact*i;
i--;
}
printf("The factorial of given number %d is %d\n",num,fact);
return 0;
}
```

OUTPUT#3:-

```
Enter the number
4
The factorial of given number 4 is 24
[1] + Done                          "/usr/
n-agzn0o26.r82" 1>"/tmp/Microsoft-MIEng
janny@stoic-programmer:~/Documents/c p
```

QUESTION #4:- SOURCE CODE

```
#include <iostream>

using namespace std;
int main(){
int num1,num2;
char op;

do{
cout<<"Enter the first number: ";
cin>>num1;
cout<<"Enter the second number: ";
cin>>num2;
cout<<"Enter the operation: ";
cin>>op;

if (op=='+')
{
cout<<num1<<" + "<<num2<<" = "<<num1+num2;
}
else if (op=='-')
{
cout<<num1<<" - "<<num2<<" = "<<num1-num2;
}
else if (op=='*')
{
cout<<num1<<" * "<<num2<<" = "<<num1*num2;
}
```

```
else if (op=='/')
{
cout<<num1<<" / "<<num2<<" = "<<num1/num2;
}
else if (op=='%')
{
cout<<num1<<" % "<<num2<<" = "<<num1%num2;
}
else{
cout<<"\nInvalid Operation"<<endl;
}

string choice;
cout<<"\n Do you want to do another calculation(yes/no)?";
cin>>choice;
if (choice=="yes"){
continue;
}
else if(choice=="no"){
break;
}
}
while(true);
return 0;
}
```

OUTPUT#4:-

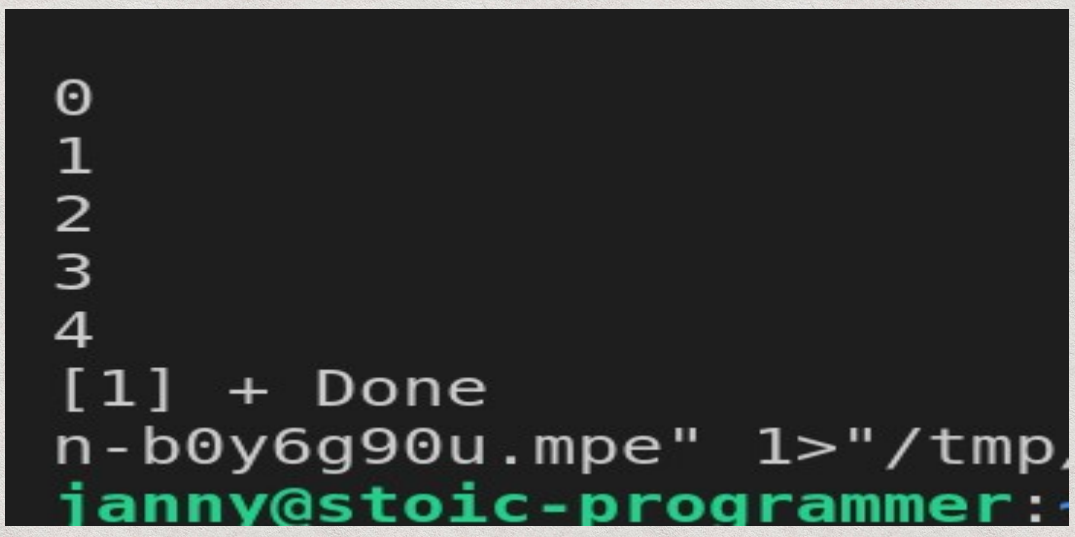
```
Enter the first number: 12
Enter the second number: 11
Enter the operation: -
12 - 11 = 1
 Do you want to do another calculation(yes/no)?yes
Enter the first number: 23
Enter the second number: 12
Enter the operation: +
23 + 12 = 35
 Do you want to do another calculation(yes/no)?yes
Enter the first number: 23
Enter the second number: 2
Enter the operation: *
23 * 2 = 46
 Do you want to do another calculation(yes/no)?yes
Enter the first number: 64
Enter the second number: 8
Enter the operation: /
64 / 8 = 8
 Do you want to do another calculation(yes/no)?mmm
Enter the first number: 12
Enter the second number: 13
Enter the operation: %
12 % 13 = 12
 Do you want to do another calculation(yes/no)?no
[1] + Done                       "/usr/bin/gdb" --i
n-ohsxu7zv.jtv" 1>"/tmp/Microsoft-MIEngine-Out-mgbh
janny@stoic-programmer:~/Documents/c plus plus$
```

DO WHILE LOOP

QUESTION #1:-

```
#include<iostream>
using namespace std;
int main()
{
int i = 0;
do {
cout << i << "\n";
i++;
}
while (i < 5);
return 0;

}
```

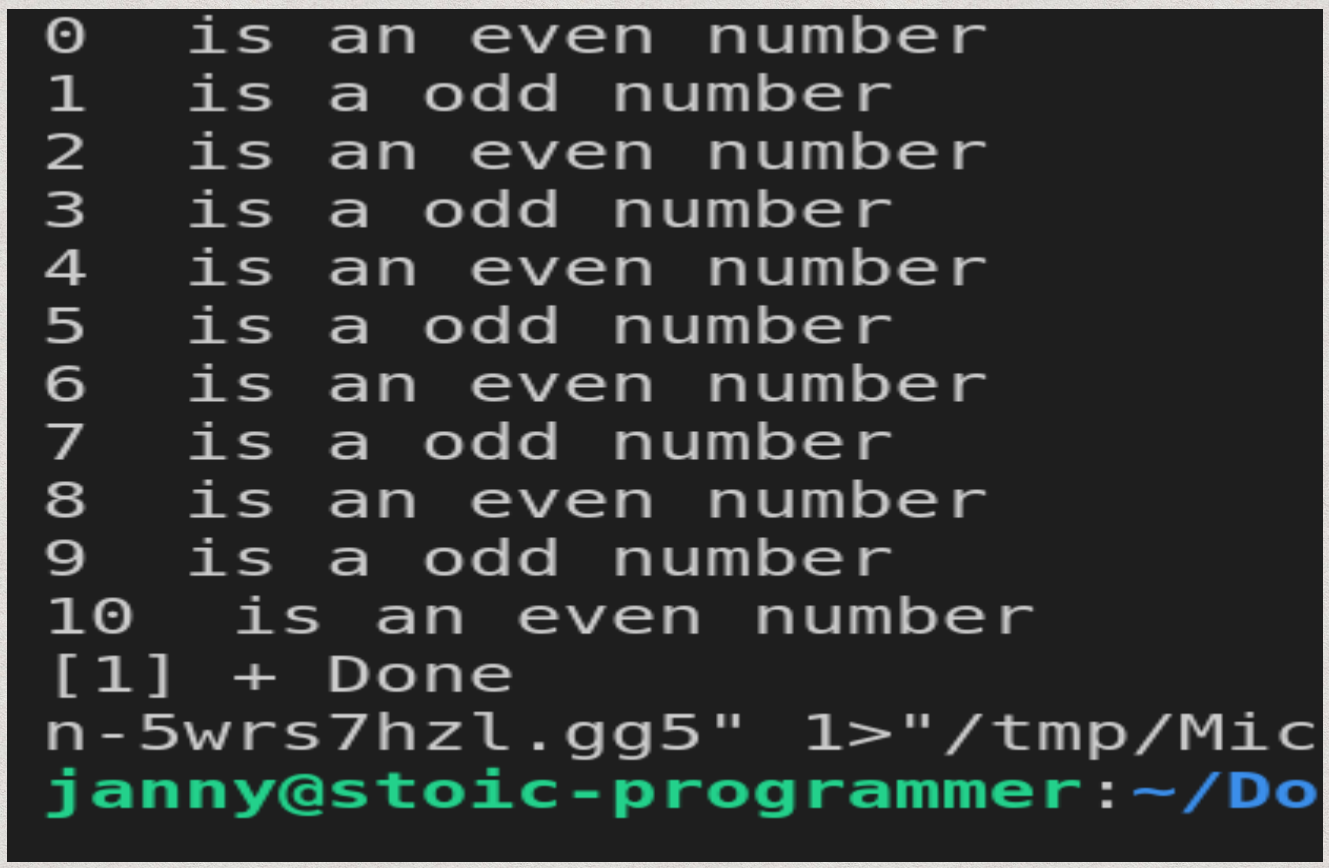
OUTPUT #1:-



QUESTION #2:- SOURCE CODE

```
#include<iostream>

using namespace std;

int main()
{
int i=0;
do
{
if(i%2==0)
cout<<i<<" is an even number"<<endl;
else
cout<<i<<" is a odd number"<<endl;
i++;

} while(i<11);



return 0;

}
```

OUTPUT#2:-



QUESTION #3:- SOURCE CODE

```
#include<iostream>

using namespace std;
```

```
int main()
{
int i=1,num;
cout<<"Enter a number :";
cin>>num;

do
{
cout<<i*num<<endl;
i++;

} while (i<=num);

return 0;

}
```

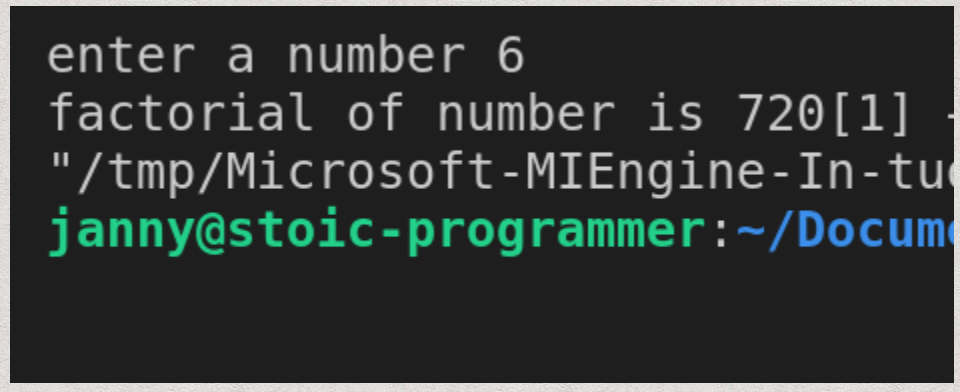
OUTPUT:-

```
Enter a number :6
6
12
18
24
30
36
[1] + Done
n-snf0weyi.71w" 1>"/tmp/M
janny@stoic-programmer:~/
```

question #4:- SOURCE CODE

```
#include<iostream>


using namespace std;

int main()
{
int i=1,no,fact=1;
cout<<"enter a number";
cin>>no;
do
{
fact=fact*i;
i++;
}while(i<=no);
cout<<"factorial of number is "<< fact;

return 0;
}
```

OUTPUT:-



Question #5:- SOURCE CODE

```
#include <iostream>


using namespace std;
int main(){
int num1,num2;
char op;


do{
cout<<"Enter the first number: ";
cin>>num1;
cout<<"Enter the second number: ";
cin>>num2;
cout<<"Enter the operation: ";
cin>>op;


if (op=='+')
{
cout<<num1<<" + "<<num2<<" = "<<num1+num2;
}
else if (op=='-')
{
cout<<num1<<" - "<<num2<<" = "<<num1-num2;
}
else if (op=='*')
{
cout<<num1<<" * "<<num2<<" = "<<num1*num2;
}
else if (op=='/')
{
cout<<num1<<" / "<<num2<<" = "<<num1/num2;
}
```

```
else if (op=='%')
{
cout<<num1<<" % "<<num2<<" = "<<num1%num2;
}
else{
cout<<"\nInvalid Operation"<<endl;
}


string choice;
cout<<"\n Do you want to do another calculation(yes/no)?";
cin>>choice;
if (choice=="yes"){
continue;
}
else if(choice=="no"){
break;
}
}
while(true);
return 0;
}
```

output#5:-

```
Enter the first number: 12
Enter the second number: 11
Enter the operation: -
12 - 11 = 1
 Do you want to do another calculation(yes/no)?yes
Enter the first number: 23
Enter the second number: 12
Enter the operation: +
23 + 12 = 35
 Do you want to do another calculation(yes/no)?yes
Enter the first number: 23
Enter the second number: 2
Enter the operation: *
23 * 2 = 46
 Do you want to do another calculation(yes/no)?yes
Enter the first number: 64
Enter the second number: 8
Enter the operation: /
64 / 8 = 8
 Do you want to do another calculation(yes/no)?mmm
Enter the first number: 12
Enter the second number: 13
Enter the operation: %
12 % 13 = 12
 Do you want to do another calculation(yes/no)?no
[1] + Done                       "/usr/bin/gdb" --i
n-ohsxu7zv.jtv" 1>"/tmp/Microsoft-MIEngine-Out-mgbh
janny@stoic-programmer:~/Documents/c plus plus$
```

NESTED LOOPS

QUESTION#1:- SOURCE CODE

```
#include<iostream>
using namespace std;
int main()
{
//Right Triangle pattern using asterisk in reverse order
int square;
cout<<"Enter The Size of Trianle = "; // size
cin>>square;
for(int i = square;i>=1;i--) // outer loop
{
for(int j=1;j<=i;j++) //inner loop
{
cout<<"* "; // value that is output
}
cout<<endl;//new line for next line output
}
return 0;

}
```

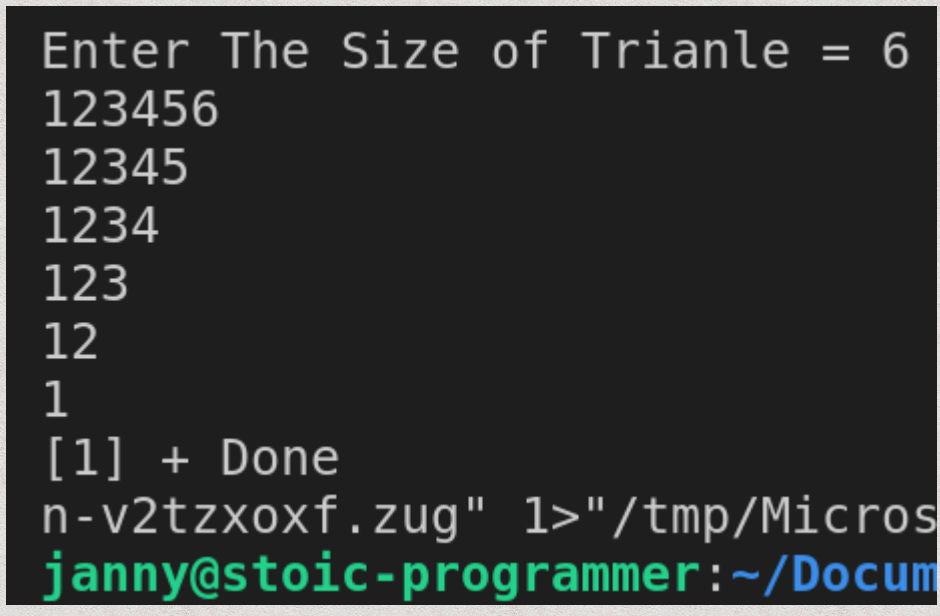
OUTPUT:-

```
Enter The Size of Trianle = 5
* * * * *
* * * *
* * *
* *
*
[1] + Done
n-chd510eo.r9a" 1>"/tmp/Microso
janny@stoic-programmer:~/Docume
```

QUESTION #2:-

```
#include<iostream>
using namespace std;
int main()
{
int triangle;
cout<<"Enter The Size of Trianle = "; // size
cin>>triangle;
for(int i = triangle;i>=1;i--) // outer loop
{
for(int j=1;j<=i;j++) //inner loop
{
cout<<j;
cout<<endl;
return 0;

}
```

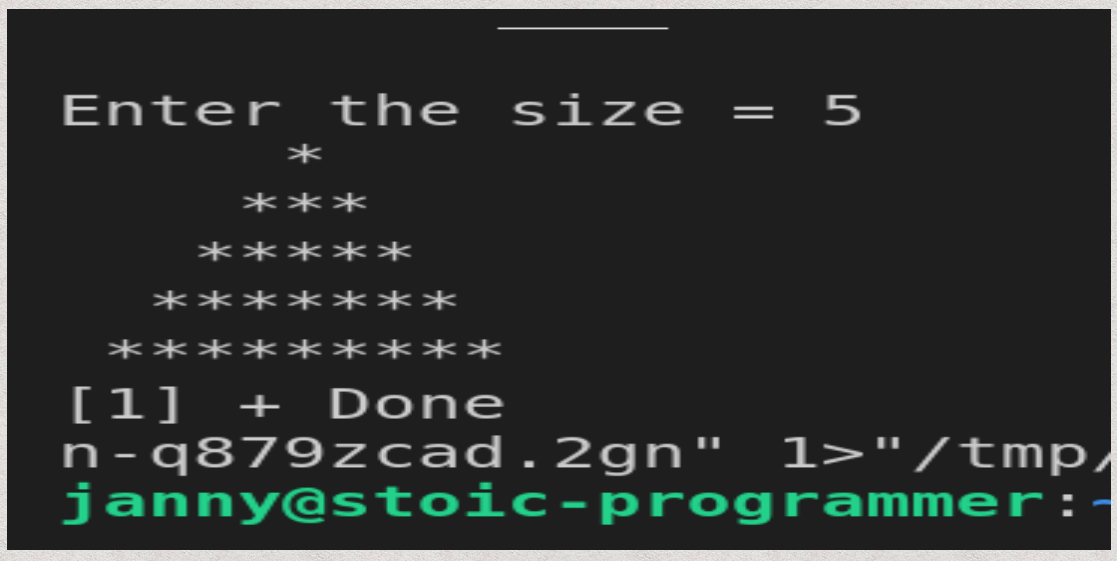
OUTPUT:-



QUESTION #3:- SOURCE CODE

```
#include<iostream>
using namespace std;
int main() {
int value;
cout << "Enter the size = ";
cin >> value;
int space = value;
for (int i = 0; i < value; i++) {
for (int j = space; j > 0; j--) {
cout << " ";
}
for (int star = 0; star <= i * 2; star++) {
cout << "*";
}
space--;
cout << endl;
}

return 0;

}
```

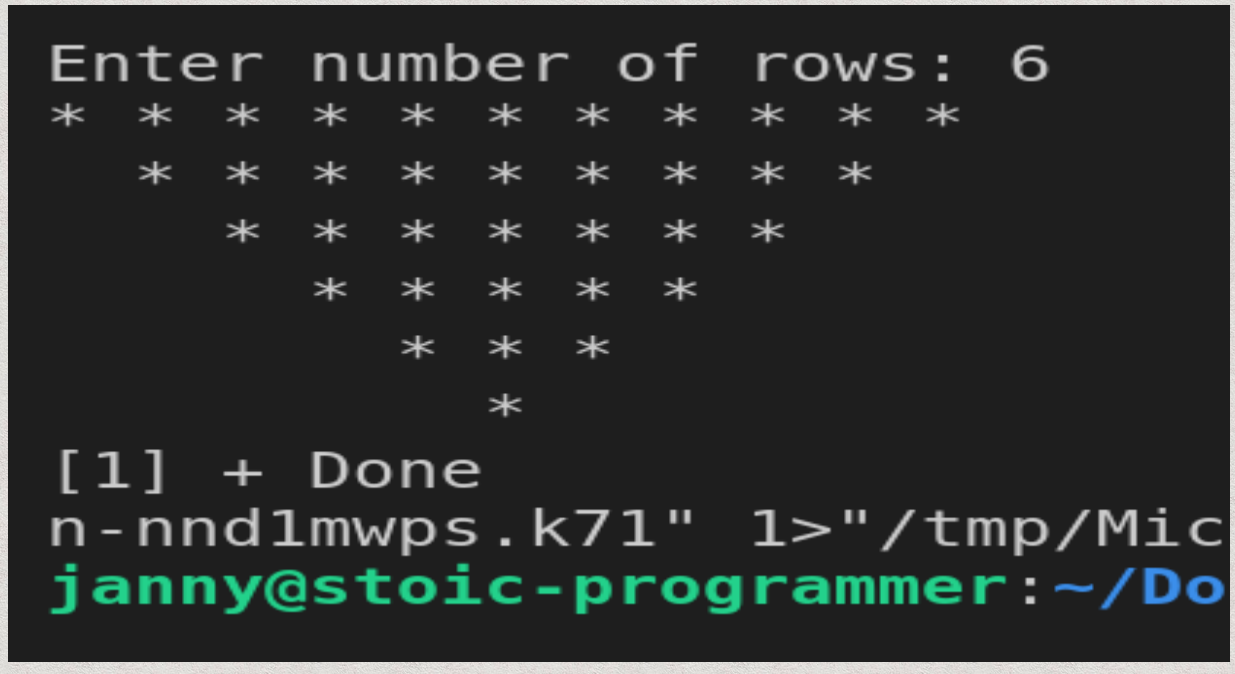
OUTPUT:-



QUESTION #4:-

```
#include <iostream>
using namespace std;

int main()
{
int rows;

cout << "Enter number of rows: ";
cin >> rows;

for(int i = rows; i >= 1; --i)
{
for(int space = 0; space < rows-i; ++space)
cout << " ";

for(int j = i; j <= 2*i-1; ++j)
cout << "* ";

for(int j = 0; j < i-1; ++j)
cout << "* ";

cout << endl;
}

return 0;
}
```

OUTPUT:-



1D AND 2D ARRAYS

QUESTION #1:- SOURCE CODE

```
#include<iostream>
using namespace std;

int main()
{
int row, col, m1[10][10], m2[10][10], sum[10][10];

cout<<"Enter the number of rows(should be >1 and <10): ";
cin>>row;
```

```
cout<<"Enter the number of column(should be >1 and <10):
";
cin>>col;
cout << "Enter the elements of first 1st matrix: ";
for (int i = 0;i<row;i++ ) {
for (int j = 0;j < col;j++ ) {
cin>>m1[i][j];
}
}
cout << "Enter the elements of first 1st matrix: ";
for (int i = 0;i<row;i++ ) {
for (int j = 0;j<col;j++ ) {
cin>>m2[i][j];jmkmj
}
}

cout<<"Output: ";
for (int i = 0;i<row;i++ ) {
for (int j = 0;j<col;j++ ) {
sum[i][j]=m1[i][j]+m2[i][j];
cout<<sum[i][j]<<" ";
}
}

return 0;
}
```

OUTPUT:-

```
Enter the number of rows(should be >1 and <10): 3
Enter the number of column(should be >1 and <10): 2
Enter the elements of first 1st matrix: 1
2
3
4
5
6
Enter the elements of first 1st matrix: 1
2
3
5
6
7
Output: 2 4 6 9 11 13 [1] + Done
p/Microsoft-MIEngine-In-gkrfun2z.qun" 1>"/tmp/Micros
janny@stoic-programmer:~/Documents/c plus plus$
```

QUESTION #2:-

```
#include <iostream>
#include <cstdlib>
#include <ctime>

using namespace std;

int main()
{
int no_of_numbers = 100;
int first_number = 1;

std::srand(std::time(0));

int random = std::rand() % no_of_numbers + first_number;
for (int i=0; i<10; ++i)
{
random = std::rand() % no_of_numbers + first_number;
std::cout << random << std::endl;
}

return 0;
}
```

OUTPUT:-

```
70
77
66
72
30
42
19
5
96
23
[1]  + Done
n-6l1ghkvh.5rl"
janny@stoic-prog
```

QUESTION4:-

```
#include <iostream>
#include <ctime> // For time()
#include <cstdlib> // For srand() and rand()


using namespace std;
int main()
{
const int row=5;
const int column=10;
/*int rnum;*/
double table[row][column];
/*srand(time(0)); // Initialize random number generator.
rnum = (rand() % 50) + 1;
if (rnum>1 && rnum <100)*/
for(int r=0; r<row; r++)
{ for(int c=0; c<column;c++)
{ cout << table[row][column];
}
}



system("pause");
return 0;
}
```

QUESTION #5:-

```
#include<iostream>
using namespace std;
int main ()
{
int arr[10], n, i, max, min;
cout << "Enter the size of the array : ";
cin >> n;
cout << "Enter the elements of the array : ";
for (i = 0; i < n; i++)
cin >> arr[i];
max = arr[0];
for (i = 0; i < n; i++)
{
if (max < arr[i])
max = arr[i];
}
min = arr[0];
for (i = 0; i < n; i++)
{
if (min > arr[i])
min = arr[i];
}
cout << "Largest element : " << max;
cout << "\n Smallest element : " << min;
return 0;
}
```

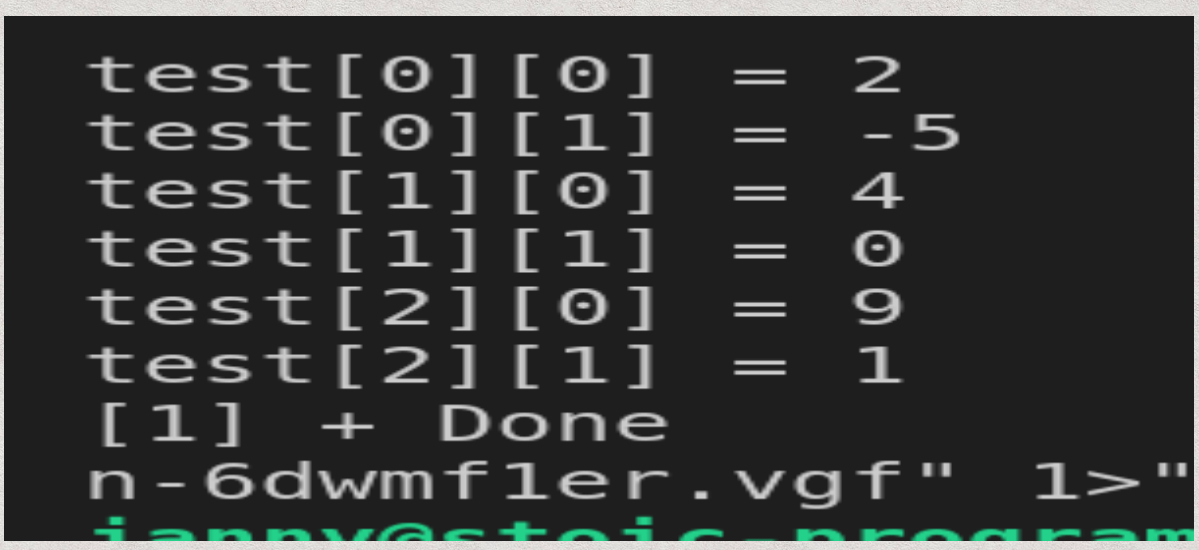
OUTPUT:-

```
Enter the size of the array : 4
Enter the elements of the array : 1
2
3
4
Largest element : 4
 Smallest element : 1[1] + Done
/Microsoft-MIEngine-In-n50xldt1.sgt"
janny@stoic-programmer:~/Documents/c
```

QUESTION #6:-

```
#include <iostream>
using namespace std;

int main() {
int test[3][2] = {{2, -5},
{4, 0},
{9, 1}};

for (int i = 0; i < 3; ++i) {

for (int j = 0; j < 2; ++j) {
cout << "test[" << i << "][" << j << "] = " << test[i][j] << endl;
}
}

return 0;
}
```

OUTPUT:-



QUESTION #7:-

```
// C++ program of above implementation
#include<iostream>
using namespace std;

struct Pair
{
int min;
int max;
};

struct Pair getMinMax(int arr[], int low,
int high)
{
struct Pair minmax, mml, mmr;
int mid;
```

```
if (low == high)
{
minmax.max = arr[low];
minmax.min = arr[low];
return minmax;
}
if (high == low + 1)
{
if (arr[low] > arr[high])
{
minmax.max = arr[low];
minmax.min = arr[high];
}
else
{
minmax.max = arr[high];
minmax.min = arr[low];
}
return minmax;
}
mid = (low + high) / 2;
mml = getMinMax(arr, low, mid);
mmr = getMinMax(arr, mid + 1, high);
// Compare minimums of two parts
if (mml.min < mmr.min)
minmax.min = mml.min;
else
minmax.min = mmr.min;
// Compare maximums of two parts
if (mml.max > mmr.max)
minmax.max = mml.max;
else
minmax.max = mmr.max;
return minmax;
```

```
}

int main()
{
int arr[] = { 1000, 11, 445,
1, 330, 3000 };
int arr_size = 6;
struct Pair minmax = getMinMax(arr, 0,
arr_size - 1);
cout << "Minimum element is "
<< minmax.min << endl;
cout << "Maximum element is "
<< minmax.max;
return 0;
}
```

OUTPUT:-

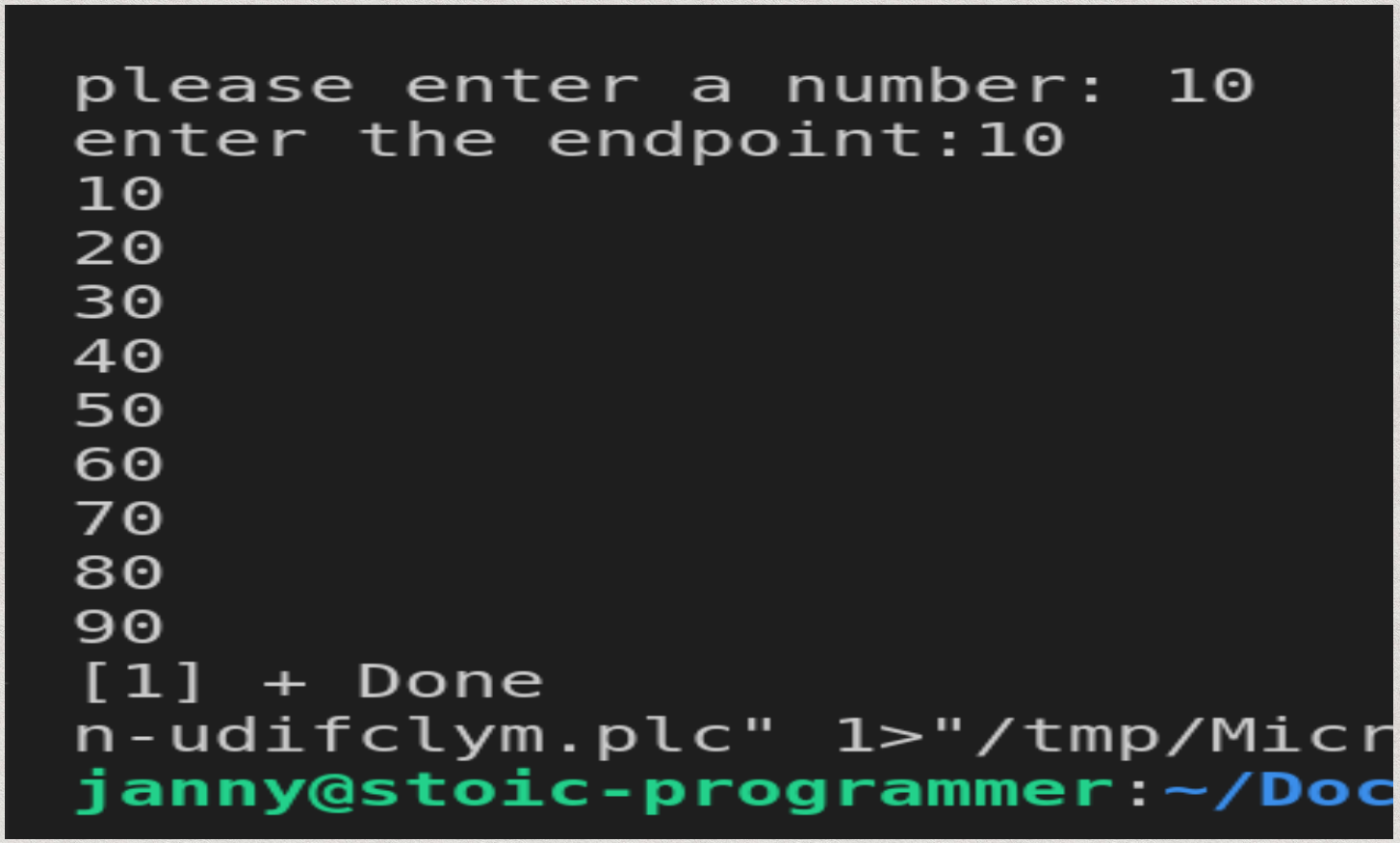
```
Minimum element is 1
Maximum element is 3000[1] + Done
mp/Microsoft-MIEngine-In-vxe5m33c.8si" 1>"
janny@stoic-programmer:~/Documents/c plus
```

FUNCTIONS

QUESTION #1:- SOURCE CODE

```
#include <iostream>
using namespace std;

void myFunction() {

int input,endpoint;
cout<<"please enter a number: ";
cin>>input;

cout<<"enter the endpoint:";
cin>>endpoint;


for (int i = 1; i < endpoint; i++)
{
cout<<i*input<<endl;

}
}

int main() {
myFunction();
return 0;
}
```

OUTPUT:-



QUESTION #2:- SOURCE CODE

```
#include<iostream>
using namespace std;

int factorial(int n);

int main()
{
int n;

cout << "Enter a positive integer: ";
```

```
cin >> n;

cout << "Factorial of " << n << " = " << factorial(n);

return 0;
}

int factorial(int n)
{
if(n > 1)
return n * factorial(n - 1);
else
return 1;
}
```

OUTPUT:-

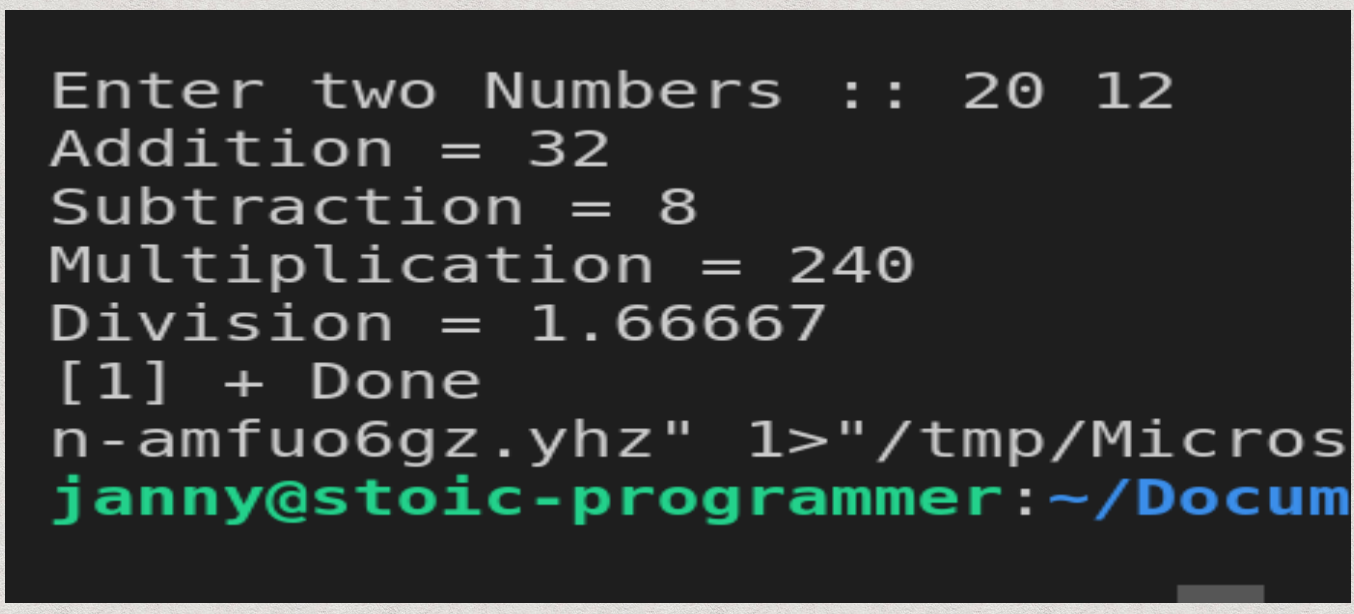
```
Enter a positive integer: 10
Factorial of 10 = 3628800[1] + Done
/tmp/Microsoft-MIEngine-In-iosn3twj.jmt
janny@stoic-programmer:~/Documents/c pl
```

QUESTION #3:-

```
#include<iostream>
using namespace std;

// function declaration
double add(double n1, double n2);
double subtract(double n1, double n2);
double multiply(double n1, double n2);
double divide(double n1, double n2);

// main function
int main()
{
// declare variables
double num1, num2;

// take input from end-user
cout << "Enter two Numbers :: ";
cin >> num1 >> num2;

// addition of two number
cout << "Addition = "<< add(num1, num2) << endl;

// subtraction of two number
cout << "Subtraction = "<< subtract(num1, num2) << endl;

// multiplication of two number
cout << "Multiplication = "<< multiply(num1, num2) <<
endl;

// division of two number
cout << "Division = "<< divide(num1, num2) << endl;
```

```
return 0;
}

// function to add two numbers
double add(double n1, double n2)
{
return n1+n2;
}

// function to subtract two numbers
double subtract(double n1, double n2)
{
return n1-n2;
}

// function to multiply two numbers
double multiply(double n1, double n2)
{
return n1*n2;
}

// function to divide two numbers
double divide(double n1, double n2)
{
return n1/n2;
}
```

OUTPUT:-



QUESTION 4:

```
#include <iostream>
using namespace std;

void display(int m[5]) {
cout << "Displaying salary: " << endl;

for (int i = 0; i < 5; ++i) {
cout << "Employee " << i + 1 << ": " << m[i] << endl;
}
```

```
}

int main() {

int salary[5] =
{200000,300000,230000,1200000,34342300};
// call display function
display(salary);

return 0;
}
```

OUTPUT:-

```
Displaying salary:
Employee 1: 200000
Employee 2: 300000
Employee 3: 230000
Employee 4: 1200000
Employee 5: 34342300
[1] + Done
n-x591cydv.m6s" 1>"/tmp/M
janny@stoic-programmer:~/
```

QUESTION 5:- SOURCE CODE

```
#include<iostream>

using namespace std;

int print_type(int n){

cout<<endl;
cout<<n<<" has datatype integer";

return 0;

}
double print_type(double l){
cout<<endl;
cout<<l<<" has a datatype Double";

return 0;
}

bool print_type(bool x){
cout<<endl;
cout<<x<<" has datype of BOOL";

return 0;
}

char print_type(char s ){
cout<<endl;
cout<<s<<" has a dataype Char";
return 0;
}
```

```
int main(){
print_type('S');
print_type(false);
print_type(1.12121212);
print_type(12323);

cout<<endl;
return 0;
}
```

OUTPUT:-

```
S has a dataype Char
0 has datype of BOOL
1.12121  has a datatype Double
12323  has datatype integer
[1] + Done
n-xglx8k4d.b4s" 1>"/tmp/Microsof
janny@stoic-programmer:~/Documer
```

POINTERS:-

QUESTION #1:- SOURCE CODE

```
#include<iostream>

using namespace std;

void convert(double*value);
int main()
{
double farenhite;

cout<<" Enter the tempreture in farenhite";
cin>>farenhite;

convert(&farenhite);

return 0;


}

void convert(double* value)
{
double cel=*value-32;
cel=cel*5/9;

cout<<"Tempreture of celcius"<<cel<<endl<<endl;
}
```

OUTPUT:-

```
 Enter the tempreture in farenhite 116
Tempreture of celcius46.6667

[1] + Done                          "/usr/
n-0gkf6nor.3j2" 1>"/tmp/Microsoft-MIEng
janny@stoic-programmer:~/Documents/c pl
```

QUESTION #2:-

```
#include <iostream>
using namespace std;
double convert(double* kilograms);

int main()
{
double kilograms;

cout<<"Enter kilograms: ";
cin>>kilograms;
cout<<kilograms<<" kilogram(s) =
"<<convert(&kilograms)<<" gram(s).\n";
system("pause");
return 0;
}
double convert(double* kilograms){
return *kilograms*1000;
}
```

OUTPUT:-

```
Enter kilograms: 33.3
33.3 kilogram(s) = 33300 gram(s).
sh: 1: pause: not found
[1] + Done
n-aidvzaok.9my" 1>"/tmp/Microsoft
janny@stoic-programmer:~/Document
```

QUESTION ##:- SOOURCE CODE

```
#include <iostream>
#define MAX_SIZE 100
using namespace std;
int main() {
char text[MAX_SIZE];
char * str = text;
int count = 0;
cout<<"Enter any string: ";
cin>>text;
while(*(str++) != '\0') count++;
cout<<"Length of "<<text<<" is "<<count;
return 0;
}
```

OUTPUT:-

```
Enter any string: STOICPROGRAMMERNAJAM
Length of STOICPROGRAMMERNAJAM is 20[1] +
bgTerm} 0<"/tmp/Microsoft-MIEngine-In-0rpb
janny@stoic-programmer:~/Documents/c plus
```

QUESTION #5:-

```
#include <iostream>
#define MAX_SIZE 100 // Maximum size of the string
using namespace std;
int main() {
char str1[MAX_SIZE], str2[MAX_SIZE];
char * s1 = str1;
char * s2 = str2;
// Inputting 2 strings from user
cout<<"Enter 1st string: ";
cin>>str1;
cout<<"Enter 2nd string: ";
cin>>str2;
// Moving till the end of str1
while(*(++s1));
// Coping str2 to str1
while(*(s1++) = *(s2++));
cout<"combined strings :"<<str1;
return 0;
}
```

OUTPUT:-

```
Enter 1st string: STOIC
Enter 2nd string: NAJAM
Concatenated string:STOICNAJAM[1]
} 0<"/tmp/Microsoft-MIEngine-In-05
janny@stoic-programmer:~/Documents
```

QUESTION #5:-

```
#include <iostream>
#define MAX_SIZE 100 // Maximum size of the string
using namespace std;
int main() {
char str1[MAX_SIZE], str2[MAX_SIZE];
char * s1 = str1;
char * s2 = str2;
// Inputting 2 strings from user
cout<<"Enter 1st string: ";
cin>>str1;
cout<<"Enter 2nd string: ";
cin>>str2;
// Moving till the end of str1
while(*(++s1));
// Coping str2 to str1
while(*(s1++) = *(s2++));
cout<"combined strings :"<<str1;
return 0;
}
```

OUTPUT:-

```
Enter 1st string: STOIC
Enter 2nd string: NAJAM
Concatenated string:STOICNAJAM[1]
} 0<"/tmp/Microsoft-MIEngine-In-05
janny@stoic-programmer:~/Documents
```

STRUCTURES

QUESTION#1:- SOURCE CODE

```
#include <iostream>
#include <iomanip>
using namespace std;

struct Employee{
int number;
float compensation;
};


int main(){
struct Employee employee[3];
for(int i=0;i<3;i++){
cout<<"Enter the employee number "<<(i+1)<<": ";
cin>>employee[i].number;
```

```
cout<<"Enter the employee compensation
"<<(i+1)<<": ";
cin>>employee[i].compensation;
cout<<"\n";
}
cout<<"\n";
for(int i=0;i<3;i++){
cout<<"The employee number "<<(i+1)<<":
"<<employee[i].number<<"\n";
cout<<"The employee compensation "<<(i+1)<<":
"<<employee[i].compensation<<"\n";
}


system("pause");
return 0;
}
```

OUTPUT:-

```
Enter the employee number 1: 02002
Enter the employee compensation 1: 320000

Enter the employee number 2: 01010
Enter the employee compensation 2: 2320903

Enter the employee number 3: 020120
Enter the employee compensation 3: 3828374


The employee number 1: 2002
The employee compensation 1: 320000
The employee number 2: 1010
The employee compensation 2: 2.3209e+06
The employee number 3: 20120
The employee compensation 3: 3.82837e+06
sh: 1: pause: not found
[1] + Done                       "/usr/bin/gdb
n-exrf54oq.z45" 1>"/tmp/Microsoft-MIEngine-Out
janny@stoic-programmer:~/Documents/c plus plus
```

QUESTION #2:-

```
#include <iostream>
#include <iomanip>
using namespace std;

struct Time{
int hours;
int minutes;
int seconds;
};

int main(){
struct Time time1;
struct Time time2;
struct Time timeSum;
cout<<"Enter a time value in hours, minutes, and
seconds 1: ";
cin>>time1.hours>>time1.minutes>>time1.seconds;
cout<<"Enter a time value in hours, minutes, and
seconds 2: ";
cin>>time2.hours>>time2.minutes>>time2.seconds;
int
totalSeconds1=time1.hours*60*60+time1.minutes*60
+time1.seconds;
int
totalSeconds2=time2.hours*60*60+time2.minutes*60
+time2.seconds;
```

```
int sumSeconds=totalSeconds1+totalSeconds2;

cout<<"\nThe total number of seconds time 1:
"<<totalSeconds1<<" seconds\n";
cout<<"The total number of seconds time 2:
"<<totalSeconds2<<" seconds\n";
/
cout<<"\nTime 1: "<<setw(2) <<
setfill('0')<<time1.hours<<":"<<setw(2) <<
setfill('0')<<time1.minutes<<":"<<setw(2) <<
setfill('0')<<time1.seconds<<"\n";
cout<<"Time 2: "<<setw(2) <<
setfill('0')<<time2.hours<<":"<<setw(2) <<
setfill('0')<<time2.minutes<<":"<<setw(2) <<
setfill('0')<<time2.seconds<<"\n";

cout<<"\nAdd two times\n";
cout<<"The sum of two times: "<<sumSeconds<<"
seconds\n";
timeSum.minutes = sumSeconds / 60;
timeSum.seconds = sumSeconds % 60;
timeSum.hours = timeSum.minutes / 60;
timeSum.minutes = timeSum.minutes % 60;
cout<<"Time sum: "<<setw(2) <<
setfill('0')<<timeSum.hours<<":"<<setw(2) <<
setfill('0')<<timeSum.minutes<<":"<<setw(2) <<
setfill('0')<<timeSum.seconds<<"\n";
system("pause");
return 0;
```

```
}
```

OUTPUT:-

```
Enter a time value in hours, minutes, and seconds 1: 2 30 45
Enter a time value in hours, minutes, and seconds 2: 3 45 32

The total number of seconds time 1: 9045 seconds
The total number of seconds time 2: 13532 seconds

Time 1: 02:30:45
Time 2: 03:45:32

Add two times
The sum of two times: 22577 seconds
Time sum: 06:16:17
sh: 1: pause: not found
[1] + Done                       "/usr/bin/gdb" --interpreter=mi --tty
n-vrb2c3y2.4d0" 1>"/tmp/Microsoft-MIEngine-Out-rnuaq1un.y26"
janny@stoic-programmer:~/Documents/c plus plus$
```

QUESTION #3:-

```
#include <iostream>
using namespace std;
//////////////////////////////////////////////////////////
struct Distance
{
int feet;
float inches;
};
//////////////////////////////////////////////////////////
struct Volume
{
Distance length;
Distance width;
Distance height;
};
//////////////////////////////////////////////////////////
int main()
{
float l, w, h;
Volume room1 = { { 16, 3.5 },{ 12, 6.25 },{ 8, 1.75 } };
l = room1.length.feet + room1.length.inches / 12.0;
w = room1.width.feet + room1.width.inches / 12.0;
h = room1.height.feet + room1.height.inches / 12.0;
cout << "Volume = " << l*w*h << " cubic feet\n";
return 0;

}
```

OUTPUT:-

```
Volume = 1661.63 cubic feet
[1] + Done
n-tvj01rmt.l1z" 1>"/tmp/Microsoft
janny@stoic-programmer:~/Document
```

QUESTION #5:-

```
#include <iostream>
using namespace std;
//////////////////////////////////////////////////////////
struct phone
{
int area;
int exchange;
int number;
};
//////////////////////////////////////////////////////////
int main()
{
phone ph1 = { 212, 767, 8900 };
phone ph2;
cout << "\nEnter your area code, exchange, and
number";
cout << "\n(Don't use leading zeros) : ";
cin >> ph2.area >> ph2.exchange >> ph2.number;
```

```
cout << "\nMy number is " //display numbers
<< '(' << ph1.area << ") "
<< ph1.exchange << ' - ' << ph1.number;
cout << "\nYour number is "
<< '(' << ph2.area << ") "
<< ph2.exchange << ' - ' << ph2.number << endl;
return 0;
}
```

output:-

```
Enter your area code, exchange, and number
(Don't use leading zeros) : 512
534
744

My number is (212) 76721087048900
Your number is (512) 5342108704744
[1] + Done                          "/usr/bin/gdb
n-clc66cgj.3vz" 1>"/tmp/Microsoft-MIEngine-Out
janny@stoic-programmer:~/Documents/c plus plus
```

THE END