CYNERGY | CODING CLUB

QUESTION BANK

1. Swapping two numbers:

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

int main() {

int a,b;
a=5;
b=6;
cout<<"The original numbers are (a,b) : "<<a<<","<<b<<endl;
//endl is used to change line

//SWAPPING 2 NUMBERS USING 3rd VARIABLE
int c=b;
b=a;
a=c;
cout<<"swapped numbers are (a,b) :"<<a<<","<<b<<endl;


//SWAPPING 2 NUMBERS WITHOUT 3rd VARIABLE
a=a+b;
b=a-b;
a=a-b;
cout<<"swapped numbers are (a,b) :"<<a<<","<<b;

  return 0;
}
```

Output:

stdout

```
The original numbers are (a,b) : 5,6
swapped numbers are (a,b) :6,5
swapped numbers are (a,b) :5,6
```

2. Grade point assigning of a student using if – else if statements:

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

int main() {
int cgpa;
char grade;

cout<<"Enter the CGPA of the Student"<<endl;
cin>>cgpa;

cout<<"The cgpa of the student is : "<<cgpa<<endl;

if(cgpa>7 && cgpa<=8)
    grade = 'C';
else if(cgpa>8 && cgpa<=9)
    grade = 'B';
else if(cgpa>9 && cgpa<=10)
    grade = 'A';

cout<<"The grade point of the student is : "<<grade<<endl;

    return 0;
}
```

Input:

stdin

```
9
```

Output:

stdout

```
Enter the CGPA of the Student
The cgpa of the student is : 9
The grade point of the student is : B
```

3. Printing table of 2 using for loop for any given number entered by the user :

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

int main() {

int number;
cout<<"Enter the number whose table is to be printed: "<<endl;
cin>>number;

for(int i=1; i<=10 ; i++)
{
    cout<<number<<" x "<<i<< " = "<<number*i<<endl;
}
    return 0;
}
```

Input:

stdin

```
5
```

Output:

stdout

```
Enter the number whose table is to be printed:
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

4. Pattern printing using for loop: half pyramid using *

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

int main() {

  for(int i=0; i<=5 ; i++)
  {

    cout<<endl;


    for(int j=0; j<=i ; j++)
    {
      cout<<"*";
    }

  }
    return 0;
}
```

Output :

stdout

```
*
**
***
****
*****
******
```

5. Pattern printing using for loop: half pyramid using numbers:

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

int main()
{
     int rows;

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

     for(int i = 1; i <= rows; ++i)
     {
          for(int j = 1; j <= i; ++j)
          {
               cout << j << " ";
          }
          cout << "\n";
     }
     return 0;
}
```

Output:

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

6. Pattern printing using for loop: half pyramid using alphabets:

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

int main()
{
     char input, alphabet = 'A';

     cout << "Enter the uppercase character you want to print in the last row: ";
     cin >> input;

     for(int i = 1; i <= (input-'A'+1); ++i)
     {
          for(int j = 1; j <= i; ++j)
          {
               cout << alphabet << " ";
          }
          ++alphabet;

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

Output:

```
A
B B
C C C
D D D D
E E E E E
```

7. Pattern printing using for loop: inverted half pyramid using *:

```
#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 j = 1; j <= i; ++j)
          {
               cout << "* ";
          }
          cout << endl;
     }

     return 0;
}
```

Output:

```
* * * * *
* * * *
* * *
* *
*
```

DO IT YOURSELF:

8. Pattern printing using for loop: inverted half pyramid using numbers:
9. Pattern printing using for loop: inverted half pyramid using alphabets: