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ROLL-2005757
BRANCH-CSE (SLOT-1)
https://github.com/Kingsky1t/OOP_Lab_2005757

1) WAP to find area of a circle, a rectangle and a triangle, using concept of function overloading.

```
#include <iostream>
#include <math.h>
using namespace std;
#define pi 3.14

float area(float r) {
    return pi*r*r;
}

int area(int b,int h) {
    return b*h;
}

float area(int a,int b,int c) {
    float s=(a+b+c)/2.0;
    return sqrt(s*(s-a)*(s-b)*(s-c));
}

int main() {
    int br,ht,a,b,c;
    float r;
    cout<<"enter the radius of circle:";
    cin>>r;
    cout<<"enter breadth and height of rectangle:";
    cin>>br>>ht;
    cout<<"enter the three sides of triangle:";
    cin>>a>>b>>c;
    cout<<"area of circle:"<<area(r)<<endl;
    cout<<"area of rectangle:"<<area(br,ht)<<endl;
    cout<<"area of triangle:"<<area(a,b,c)<<endl;
}
```

OUTPUT:

```
enter the radius of circle:3.5
enter breadth and height of rectangle:3 4
enter the three sides of triangle:12 5 13
area of circle:38.465
area of rectangle:12
area of triangle:30
```

2) WAP to find volume of a sphere, a cylinder and a cuboid, using function overloading.

```
#include <iostream>
using namespace std;
#define pi 3.14

float vol(float r) {
    return (4*pi*r*r)/3;
}

float vol(int r,int h) {
    return pi*r*r*h;
}

int vol(int s) {
    return s*s*s;
}

int main() {
    int rd,ht,s;
    float r;
    cout<<"enter the radius of circle:";
    cin>>r;
    cout<<"enter radius and height of cylinder:";
    cin>>rd>>ht;
    cout<<"enter the side of cuboid:";
    cin>>s;
    cout<<"volume of circle:"<<vol(r)<<endl;
    cout<<"volume of cylinder:"<<vol(rd,ht)<<endl;
    cout<<"volume of cuboid:"<<vol(s)<<endl;
}
```

OUTPUT:

```
enter the radius of circle:12
enter radius and height of cylinder:5 8
enter the side of cuboid:3
volume of circle:602.88
volume of cylinder:628
volume of cuboid:27
```

3) WAP which displays a given character, n number of times, using a function. When the n value is not provided, it should print the given character 80 times. When both the character and n value is not provided, it should print ‘*’ character 80 times.
[Write the above program in two ways:-
-using function overloading. -using default arguments.]

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

void display(char c='*',int n=80) {
    for(int i=1;i<=n;i++) {
     cout<<c;
    }
}

int main() {
    cout<<"enter 1 for entering character and number"<<endl;
    cout<<"enter 2 for entering character "<<endl;
    cout<<"enter 3 for entering nothing"<<endl;
    int ch,n;
    char c;
    cin>>ch;
    switch(ch) {
     case 1:cout<<"enter character and number:";
     cin>>c>>n;
     display(c,n);
     break;
     case 2:cout<<"enter character:";
     cin>>c;
     display(c);
     break;
     case 3:display();
     break;
     default:cout<<"wrong choice";
    }
}
```

OUTPUT:

```
enter 1 for entering character and number
enter 2 for entering character
enter 3 for entering nothing
1
enter character and number:$ 20
$$$$$$$$$$$$$$$$$$$$

enter 1 for entering character and number
enter 2 for entering character
enter 3 for entering nothing
2
enter character:%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

enter 1 for entering character and number
enter 2 for entering character
enter 3 for entering nothing
3
****
***

4) WAP to find square and cube of a number using inline function.

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

inline int square(int n) {
    return n*n;
}

inline int cube(int n) {
    return n*n*n;
}

int main() {
    int n;
    cout<<"enter the value of n:";
    cin>>n;
    cout<<"square="<<square(n)<<endl;
    cout<<"cube="<<cube(n)<<endl;
}
```

OUTPUT:

```
enter the value of n:11
square=121
cube=1331
```

5) WAP to swap two variables using pass by reference.

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

void swap(int &x,int &y) {
    int temp=x;
    x=y;
    y=temp;
}

int main() {
    int fnum,lnum;
    cout<<"enter the two numbers:";
    cin>>fnum>>lnum;
    swap(fnum,lnum);
    cout<<"the numbers after swap are "<<fnum<<" and "<<lnum;
}
```

OUTPUT:

```
enter the two numbers:1 2
the numbers after swap are 2 and 1
```

6)WAP to swap the data members in two objects, using pass by reference for objects.

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

class change {
    public:
    int a;
};
void swap(int &x,int &y) {
     int temp=x;
     x=y;
     y=temp;
    }

int main() {
    change obj1,obj2;
    cout<<"enter the two numbers:";
    cin>>obj1.a>>obj2.a;
    swap(obj1.a,obj2.a);
    cout<<"the numbers after swap are "<<obj1.a<<" and "<<obj2.a;
}
```

OUTPUT:

```
enter the two numbers:1 2
the numbers after swap are 2 and 1
```