

Tutorial – Constants and typedef

1. What is the difference between a static local variable and a global variable?
2. Write a function that, when you call it, displays a message telling how many times it has been called: "I have been called 3 times" for instance. Write a main function that calls this function at least 10 times.
3. For the following function and variable declarations place an extern declaration to accomplish each of the following:

```
char choice;
int flag;
long date, time;
int main()
{
}

double factor;
double watts()
{
}

double thrust()
{
}
```

file1

```
char bondType;
double resistance;
double roi()
{
}

double average()
{
}

double variance()
{
}
```

file2

- a. Extend the scope of the global variable choice into file2
 - b. Extend the scope of the global variable flag into the average function only
 - c. Extend the scope of the global variable date in average and variance
 - d. Extend the scope of the global variable date into roi only
 - e. Extend the scope of the global variable factor into roi only
 - f. Extend the scope of the global variable bondtype into file1
4. What is the difference between these two function prototypes?

```
void callByValue(int x);
void callByConstReference(const int& x);
```

5. Write a program that asks the user for a number of gallons and then outputs the equivalent number of litres. There are 3.78533 litres in a gallon. Use a declared constant to store that value.

6. Modify your solutions to questions 8 – 16 of the functions tutorial to make sure the functions are all const correct.