

Notes: Assertions in C++

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- In C++, assertions are made to test the truth value of a statement. For example if we need to check if the number that we are dividing some expression by to be not zero we can write the following statement:

```
1 assert (abs(x) > 1e-9 ); // it checks if x value is very  
   small
```

- if in this case x is smaller than 10^{-9} the code will throw out an error with a message stating:

```
1 Assertion failed: abs(x) > 1e-9 ...
```

- Assertions are typically used to check against errors which are logically disallowed.
- For example they can be put to check if the dimensions of matrices to be multiplied are compatible or not.
- To use assertion one needs to add the header file "assert.h" (include <assert.h>).
- One may put extra human readable message in assertions as well for example:

```
1 assert ( ("divison by zero not allowed", abs(x) > 1e-9 ) ) ;  
2 // it checks if x value is very small
```

- if in this case x is smaller than 10^{-9} the code will throw out an error with a message stating:

```
1 Assertion ' ("divison by zero not allowed", abs(x) > 1e-9 ) '  
   failed
```