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22BCE3799

Lab Cat DAA L39 L40

Question no 3

```
#include <iostream>
```

```
#include <vector>
```

```
using namespace std;
```

```
int lcs(string &s1, string& s2, int m, int n, vector<vector<int>>& memo, string& str){
```

```
if(m==0 || n ==0){
```

```
return 0;;
```

```
}
```

```
if (memo[m][n]!= -1){
```

```
return memo[m][n];
```

```
}
```

```
if(s1[m-1]==s2[n-1]){
```

```
str.push_back(s1[m]);
```

```
return memo[m][n] = 1 + lcs(s1, s2, m-1, n-1, memo, str);
```

```
return memo[m][n] = max(lcs(s1, s2, m, n-1, memo, str), lcs(s1, s2, m-1, n, memo, str));
```

```
}
```

```
}
```

```
string reverse(string str){
```

```
string reversed = NULL;
```

```
for (int i = str.length()-1; i >=0; i--){
```

```
reversed.push_back(str[i]);
```

```
}
```

```
}
```

```
int main(){
```

```
string A, B, C;
```

```
cout<<"Enter String:"<<endl;
```

```
cin>>A;
```

```
cin>>B;
```

```
cin>>C;
```

```
string str, str2, str3;
```

```
int len1, len2, len3;
```

```
cout<<"\n";
```

```
int m = A.length();
```

```
int n = B.length();
```

```
int o = C.length();
```

```
vector<vector<int>> memo(m+1, vector<int>(n+1, -1));
```

```
len1 = lcs(A, B, m, n, memo, str);
```

```
cout<<reverse(str);
```

```
vector<vector<int>> memo1(o+1, vector<int>(len1+1, -1));
```

```

len2 = lcs(C, str, o, len1, memo1, str2);
cout<<"Final subsequence from A, B, C: "<<reverse(str2)<<endl;

string reversedA, reversedB, reversedC = reverse(A), reverse(B), reverse(C);

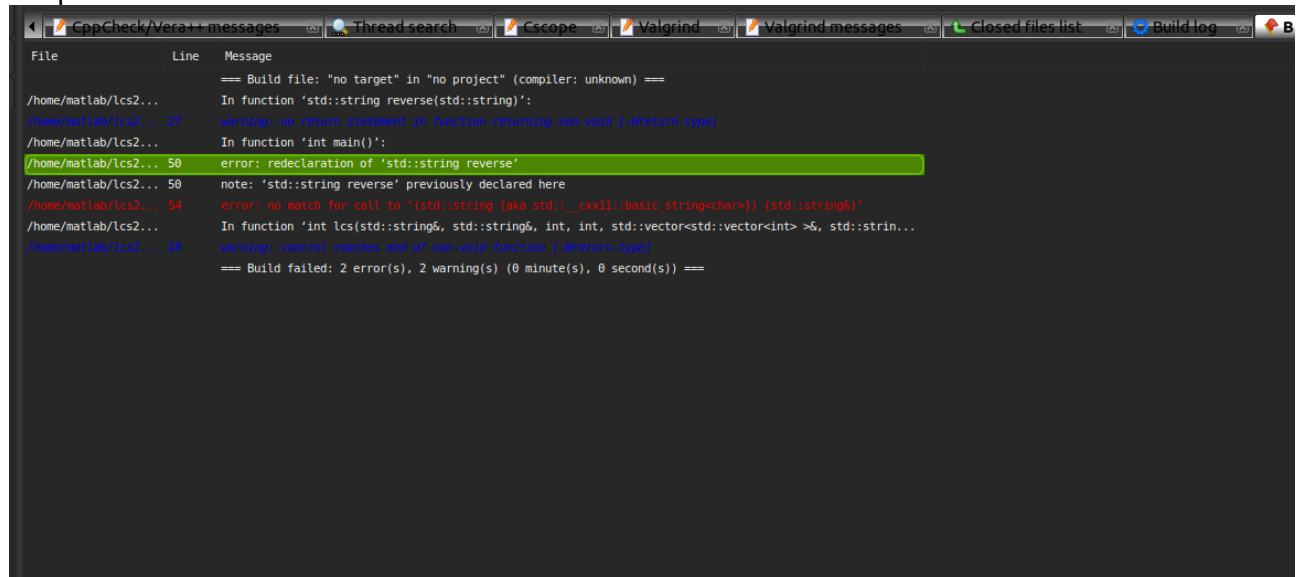
vector<vector<int>> memo2(reversedA.length()+1, vector<int>(reversedB.length()+1, -
1));
len1 = lcs(A, B, m, n, memo, str);
cout<<reverse(str3);

return 0;
}

```

source code incomplete.

## Output



The screenshot shows a window titled "CppCheck/Valgrind messages" with several tabs: "Thread search", "Cscope", "Valgrind", "Valgrind messages", "Closed files list", and "Build log". The main area displays the following messages:

File	Line	Message
=== Build file: "no target" in "no project" (compiler: unknown) ===		
/home/matlab/lcs2...		In function 'std::string reverse(std::string)':
/home/matlab/lcs2... 27		warning: no return statement in function returning non-void [-Wreturn-type]
/home/matlab/lcs2...		In function 'int main()':
/home/matlab/lcs2... 50		error: redeclaration of 'std::string reverse'
/home/matlab/lcs2... 50		note: 'std::string reverse' previously declared here
/home/matlab/lcs2... 54		error: no match for call to '(std::string (aka std::__cxx11::basic_string<char>)) (std::string&)'
/home/matlab/lcs2...		In function 'int lcs(std::string&, std::string&, int, int, std::vector<std::vector<int>> &, std::strin...':
/home/matlab/lcs2... 18		warning: control reaches end of non-void function [-Wreturn-type]
=== Build failed: 2 error(s), 2 warning(s) (0 minute(s), 0 second(s)) ===		