

U18CO018
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Software Engineering
Assignment 2

Question 1: Write a C program having some global variables that are declared but not used anywhere in the code. Run Splint for this C code and report the error generated.

Code:

```
#include <stdio.h>

int ALPHABETS = 26;

int main() /*@globals ALPHABETS;@*/ {
    return 0;
}
```

Output:

```
E:\Asem7\Software Engineering\Assignment2>splint 1.c
Splint 3.1.1 --- 12 April 2003

1.c: (in function main)
1.c(5,5): Global ALPHABETS listed but not used
  A global variable listed in the function's globals list is not used in the
  body of the function. (Use -globuse to inhibit warning)

Finished checking --- 1 code warning
```

Question 2: Write a C program having some global variables that are declared but not initialized. Return this uninitialized variable in the main function. Run Splint for this C code and report the error generated.

Code:

```
#include <stdio.h>

int COUNT;

int main() /*@globals undef COUNT @*/ {
    return COUNT;
}
```

Output:

```
E:\Asem7\Software Engineering\Assignment2>splint 2.c
Splint 3.1.1 --- 12 April 2003

2.c: (in function main)
2.c(6,12): Undef global COUNT used before definition
    An rvalue is used that may not be initialized to a value on some execution
    path. (Use -usedef to inhibit warning)
2.c(3,5): Variable exported but not used outside 2: COUNT
    A declaration is exported, but not used outside this module. Declaration can
    use static qualifier. (Use -exportlocal to inhibit warning)

Finished checking --- 2 code warnings
```

Question 3: Write a C program having some global variables that are declared but not initialized. Initialize some local variable using this uninitialized global variable. Run Splint for this C code and report the error generated. (For instance, assume global variable 'a' is declared as 'int' in the code. In the main function you can perform some operation such as 'int b =a'. This code should generate some error as the variable 'a' is not initialized in the code.)

Code:

```
#include <stdio.h>

int COUNT;

int main() /*@globals undef COUNT @*/ {
    int a;
    a = COUNT;
    return 0;
}
```

Output:

```
E:\Asem7\Software Engineering\Assignment2>splint 3.c
Splint 3.1.1 --- 12 April 2003

3.c: (in function main)
3.c(7,9): Undef global COUNT used before definition
    An rvalue is used that may not be initialized to a value on some execution
    path. (Use -usedef to inhibit warning)
3.c(3,5): Variable exported but not used outside 3: COUNT
    A declaration is exported, but not used outside this module. Declaration can
    use static qualifier. (Use -exportlocal to inhibit warning)

Finished checking --- 2 code warnings
```

Question 4: Write a C program having structure as global variable. This structure can have more than two fields. Except one field, you can initialize values to all fields in the structure. Run Splint for this C code and report the error generated. (This code should generate error as you have one uninitialized field in structure)

Code:

```
#include <stdio.h>

struct Point3D {
    int x, y, z;
};

int main(){
    struct Point3D point = {.y = 0, .z = 1};
    return 0;
}
```

Output:

```
E:\Asem7\Software Engineering\Assignment2>splint 4.c
Splint 3.1.1 --- 12 April 2003

4.c: (in function main)
4.c(8,28): Initializer block for point has 2 fields, but struct Point3D has 3
           fields: <error>, <error>
           Initializer does not set every field in the structure. (Use -fullinitblock to
           inhibit warning)
4.c(8,20): Variable point declared but not used
           A variable is declared but never used. Use /*@unused@*/ in front of
           declaration to suppress message. (Use -varuse to inhibit warning)

Finished checking --- 2 code warnings
```