Basic C programming Question for compiler

1. Character Counter

Question: Write a program to count the number of occurrences of a specific character in a given string.
Input:

- Enter a string: hello world

- Enter a character to count: l

Output:

- The character 'l' appears 3 times.

Program

```c
int CC(char x[], char c[]){

    int count = 0;

    for(int i=0;i<strlen(x);i++){

        if(x[i]==c[0]){

            count++;

        }

    }

    return count;

}

int main(){

    char x[20];

    char y[20];

    fgets(x,20,stdin);

    fgets(y,2,stdin);

    printf("The character '%s' appears %d times\n",y,CC(x,y));

    return 0;

}
```

OUTPUT

```
hello world
l
The character 'l' appears 3 times
```

2. Token Separator

Question: Write a program to split a string into tokens based on a delimiter (e.g., space).
Input:

- Enter a string: Compiler Design is Fun

- Enter the delimiter: (space)

Output:

- Token 1: Compiler

- Token 2: Design

- Token 3: is

- Token 4: Fun

Program

```c
#include<stdio.h>

#include<string.h>

int TS(char x[], char c[]){

    int token = 0;

    printf("Token %d: ",token+1);

    for(int i=0;i<strlen(x);i++){

        if(x[i]==c[0]){

            token++;

            printf("\nToken %d: ",token+1);

        }

        else{

            printf("%c",x[i]);

        }

    }

    return 0;

}

int main(){

    char x[100];

    char y[20];

    printf("Enter a String: ");
```

```
    fgets(x,100,stdin);

    printf("Enter the Delimitter:");

    fgets(y,2,stdin);

    return TS(x,y);

}

OUTPUT
```

```
Enter a String: Compiler Design is Fun
Enter the Delimitter:
Token 1: Compiler
Token 2: Design
Token 3: is
Token 4: Fun
```

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3. Keyword Identifier

Question: Write a program to check if a given word is a C keyword or not.
Input:

- Enter a word: for

Output:

- The word 'for' is a C keyword.

Program

```c
#include<stdio.h>

#include<string.h>

int KC(char x[]){

    char keyword[32][10] = {

        "auto", "double", "int", "struct", "break", "else", "long", "switch",

        "case", "enum", "register", "typedef", "char", "extern", "return", "union",

        "const", "float", "short", "unsigned", "continue", "for", "signed", "void",

        "default", "goto", "sizeof", "volatile", "do", "if", "static", "while"

    };

    for(int i=0;i<32;i++){
```

```c
        if(strcmp(keyword[i],x)==0){

            printf("'%s' is a keyword in C\n",keyword[i]);

            return 0;

        }

        else{

            continue;

        }

    }

    return 0;

}

int main(){

    char x[100];

    scanf("%s",x);

    return KC(x);

}
```

OUTPUT

```
for
'for' is a keyword in C
```

---

4. Palindrome Checker

Question: Write a program to check if a string is a palindrome.
Input:

- Enter a string: level

Output:

- The string is a palindrome.

Program

```c
#include<stdio.h>

#include<string.h>

int CC(char x[]){
```

```c
    int count = 0;

  for(int i=0;i<strlen(x);i++){

      if(x[i]==x[strlen(x)-i-1]){

          count++;

      }

  }

  if(strlen(x)==count){

      printf("The string is a palindrome.");

      return 0;

  }

  printf("The string is not a palindrome.");

  return 0;

}
int main(){

  char x[20];

  scanf("%s",x);

  return CC(x);

}
```

OUTPUT

```
level           ·
The string is a palindrome.
```

---

5. Arithmetic Expression Evaluator

Question: Write a program to evaluate a simple arithmetic expression (e.g., 5 + 3).
Input:

- Enter an arithmetic expression: 5 + 3

Output:

- Result: 8

Program

```c
#include<stdio.h>

int main(){

    printf("Enter input:");

    int a,b;

    char op;

    scanf("%d %c %d",&a,&op,&b);

    if(op=='*'){

        printf("Result :%d\n",a*b);

    }

    else if(op=='/'){

        printf("Result :%d\n",a/b);

    }

    else if(op=='+'){

        printf("Result :%d\n",a+b);

    }

    else if(op=='-'){

        printf("Result :%d\n",a-b);

    }

    else{

        printf("Invalid operator");

    }

    return 0;

}
```

```
Enter input:5 + 3
Result :8
```

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6. ASCII Value Finder

Question: Write a program to print the ASCII value of a character.
Input:

- Enter a character: A

Output:

- ASCII value of 'A': 65

Program

```c
#include<stdio.h>

int main(){

    char x;

    printf("Enter a character :");

    scanf("%c",&x);

    printf("ASCII value of '%c': %d",x,x);

    return 0;

}
```

OUTPUT

```
Enter a character :A
ASCII value of 'A': 65
```

7. Symbol Table Generator

Question: Write a program to create a symbol table with variable names and data types given as input.
Input:

- Enter the number of variables: 2

- Enter variable name and type: x int, y float

Output:

Variable Name Data Type

x   int

y   float

PROGRAM

```c
#include<stdio.h>
#include<string.h>
int main(){
    printf("Enter number of variables: ");
    int v;
    scanf("%d",&v);
    char var[50];
    printf("Enter variable name and type: ");
    getchar();
    fgets(var,50,stdin);
    int c1=0;
    printf("Variable name%*cType\n",13,' ');
    for(int i=0;i<strlen(var);i++){
        if(var[i]!=','){
        printf("%c",var[i]);
        c1++;
        }
        if(var[i]==' '){
            printf("%*c",13-c1,' ');
            c1=0;
        }
        if(var[i]==','){
            printf("\n");
        }
    }
    return 0;
```

```
}
Variable name                    Type
x                int
y           float
```

---

8. Odd-Even Identifier

Question: Write a program to identify whether a given integer is odd or even.
Input:

- Enter an integer: 7

Output:

- 7 is odd.

PROGRAM
```c
#include<stdio.h>

int main (){

    int x;

    scanf("%d",&x);

    if(x%2==0){

        printf("Even\n");

    }

    else{

        printf("Odd\n");

    }

    return 0;

}
```

```
7
Odd
```

9. Prime Number Checker

Question: Write a program to check if a number is prime.
Input:

- Enter a number: 13

Output:

- 13 is a prime number.

PROGRAM

```c
#include<stdio.h>

#include<stdlib.h>

int isprime(int x){

    if(x<2) return 0;

    for(int i=2;i*i<=x;i++){

        if(x%i==0) return 0;

    }

    return 1;

}

int main(){

    int x;

    scanf("%d",&x);

    if(isprime(x)) printf("YES\n");

    else printf("NO\n");

    return 0;

}
```

```
13
YES
```

10. Fibonacci Series Generator

Question: Write a program to generate the first n numbers in the Fibonacci series.
Input:

- Enter the value of n: 5

Output:

- Fibonacci Series: 0, 1, 1, 2, 3

```c
#include<stdio.h>

#include<stdlib.h>

int a = 0;

int b = 1;

int fib(int x,int a,int b){

    if(x==1){

        return(a+b);

    }

    printf(",%d",a+b);

    return fib(x-1,b,b+a);

}

int main(){

    int x;

    scanf("%d",&x);

    if(x==1){

        printf("0\n");

        return 0;

    }

    if(x>=2){

        printf("0,1");

    }

    if(x>2){

        x = fib(x-2,a,b);

        printf(",%d\n",x);

    }
```

```
    return 0;

}
```

hhvs—MacBook—Air:CD hhv$ ./a.out
5
0,1,1,2,3