Intro to the C pre-processor

- **C pre-processor**
  - **Before** invoking the **C compiler**, the **C programming language system** will always invoke a
    - **C pre-processor**

    to **process** the **program source code**.

  - **Tasks** performed by the **C pre-processor:**
    - **Removes comments** from the source code

```
            /* .......... */
  or:       // ........
```

    - **Process macro (symbolic) definitions**

```
    #define ...    ....
```

    - **Read in *included* file**

```
      #include <stdio.h>
or    #include "header.h"
```

    - **Other advanced conditionals**:

```
    #ifdef    ...
      ....
    #endif
```

```
    #ifndef   ....
      ....
    #endif
```

- **Comments in *C***
  - It ***used to be*** that **C** ***only*** have ***multi-line*** **comments** enclosed between the pairs of "brackets" `/* ... */`:

```
/*  .....
    .....
    .....   */
```

  - **Examples:**

```
/* This is a comment in a C program */
```

```
/*
 * This is an another comment
 * in a C program
 */
```

  - A **later revision C99** in 1999 of the **C programming language** has added the **C++ style** comment:

```
// This is now allowed as comment
```

  - The **C pre-processor** will **remove** all comments.

    Demo:

    - **Compile** this program `comment.c`:

```
/* ----------------------------------------
   This is a comment
   ---------------------------------------- */

This is a NOT comment (will generate syntax error !)

int main( int argc, char* argv[] )
{
```

```
    printf( "Hello World !\n" );
}
```

using this command:

```
gcc -E comment.c
```

- **Result:**

```
# 1 "comment.c"
# 1 ""
# 1 ""
# 1 "comment.c"

This is a NOT comment (will generate syntax error !)

int main( int argc, char* argv[] )
{
   printf( "Hello World !\n" );
}
```

- **Example Program:** (Demo above code)

  - Prog file: click here

How to run the program:

- **Right click** on link and **save** in a scratch directory
- To compile: `gcc -E comment.c`
- Look at the output on the terminal....