

CS 501 – 85 H5 6 5 G9 GC: HK 5 F 9 8 9 G, B

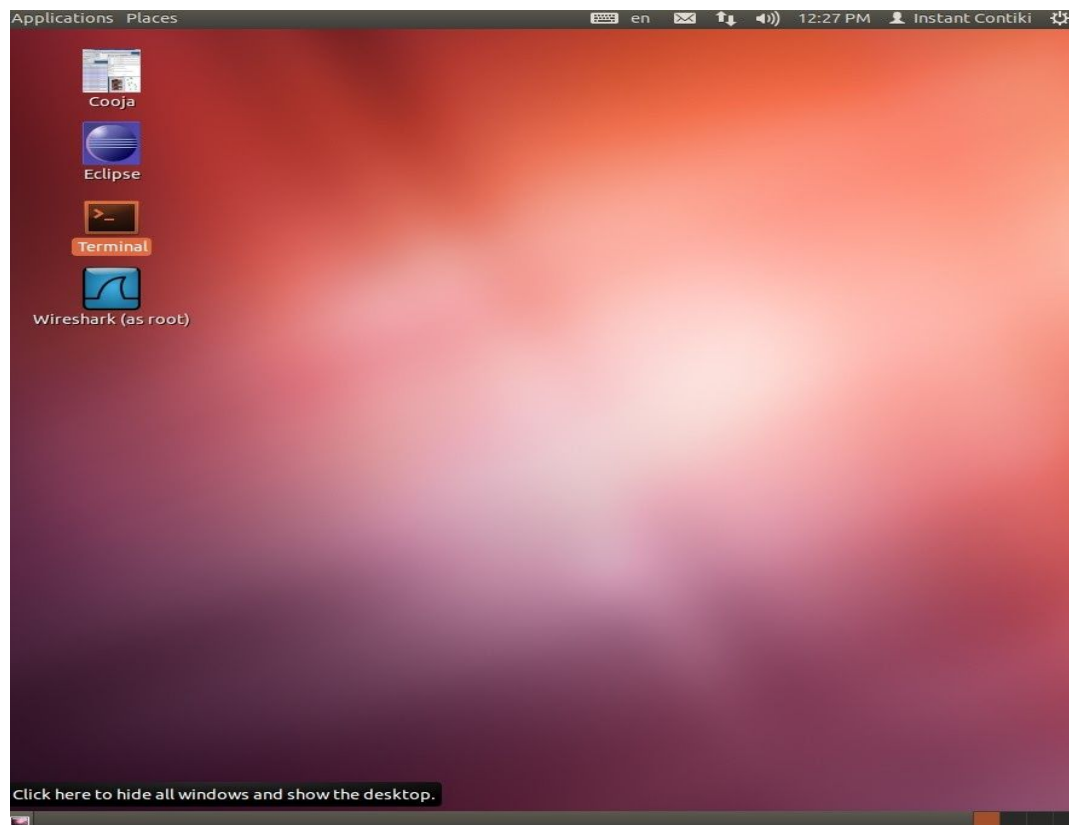
Assignment!1

Group Members

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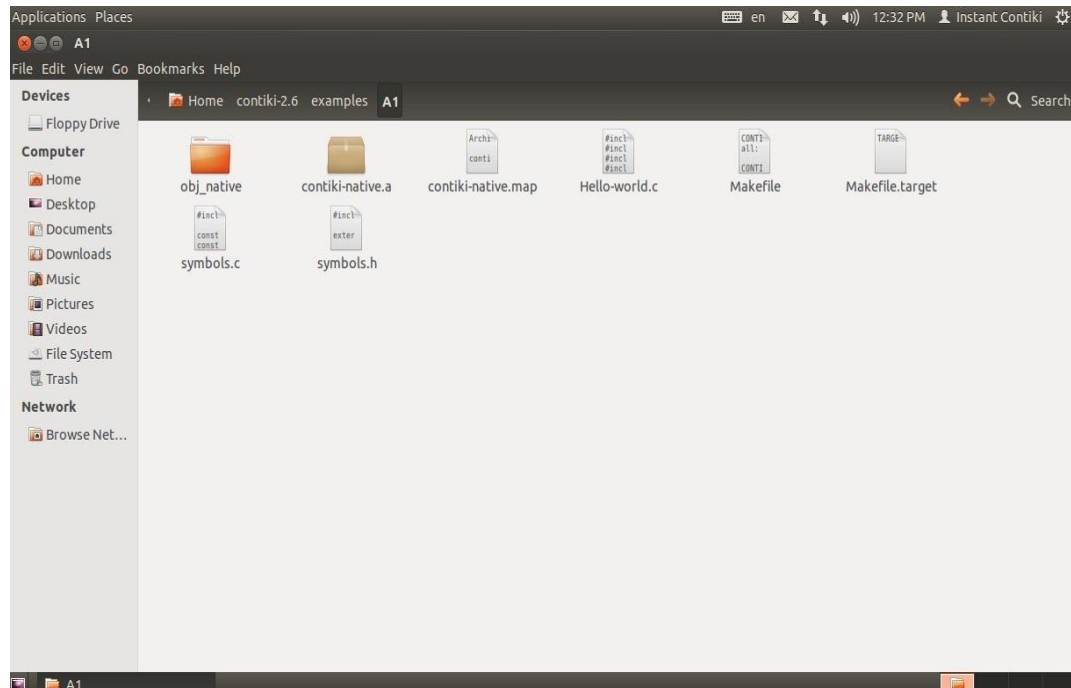
Steps and Screenshots of the Execution :

1. Opened VMware Workstation and logged into Instant Contiki user (password : user)

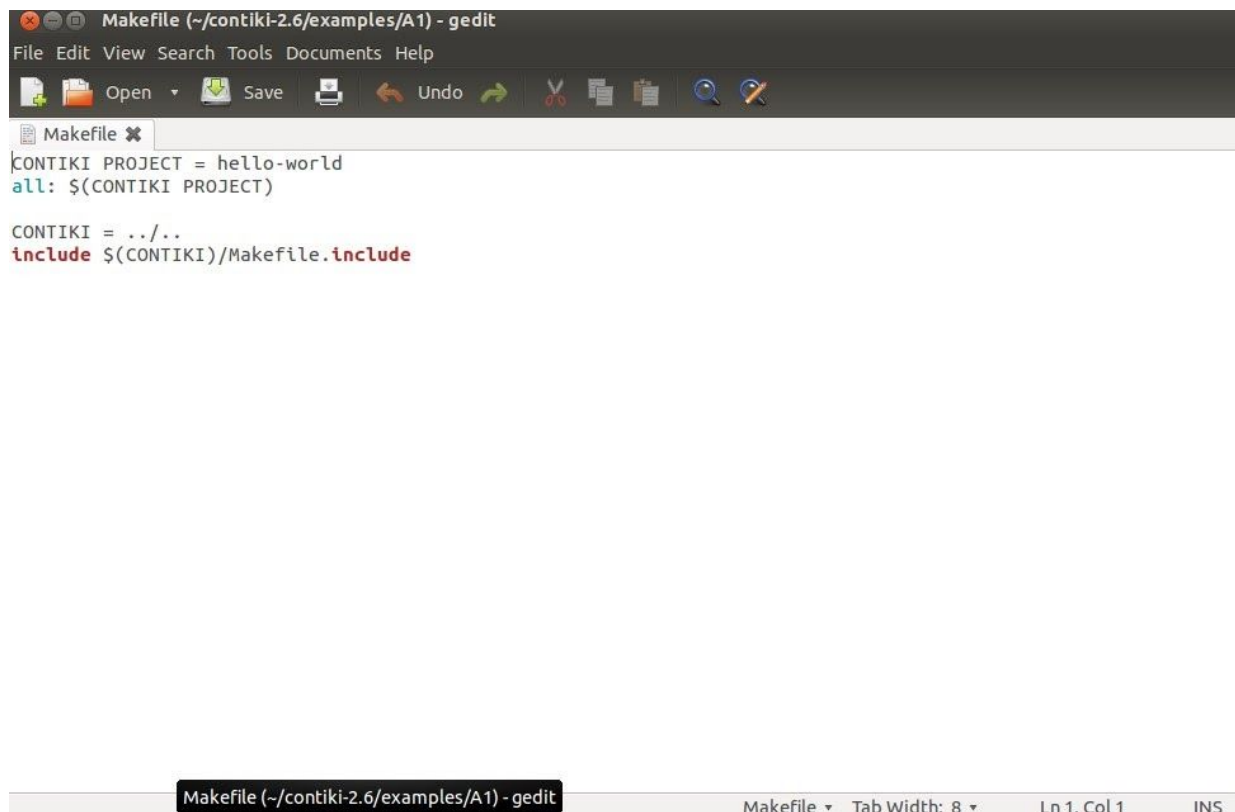


2. Created a directory named A1 under “/home/user/contiki-2.6/examples/” and pasted Hello-world.c , Makefile , Makefile.target files:

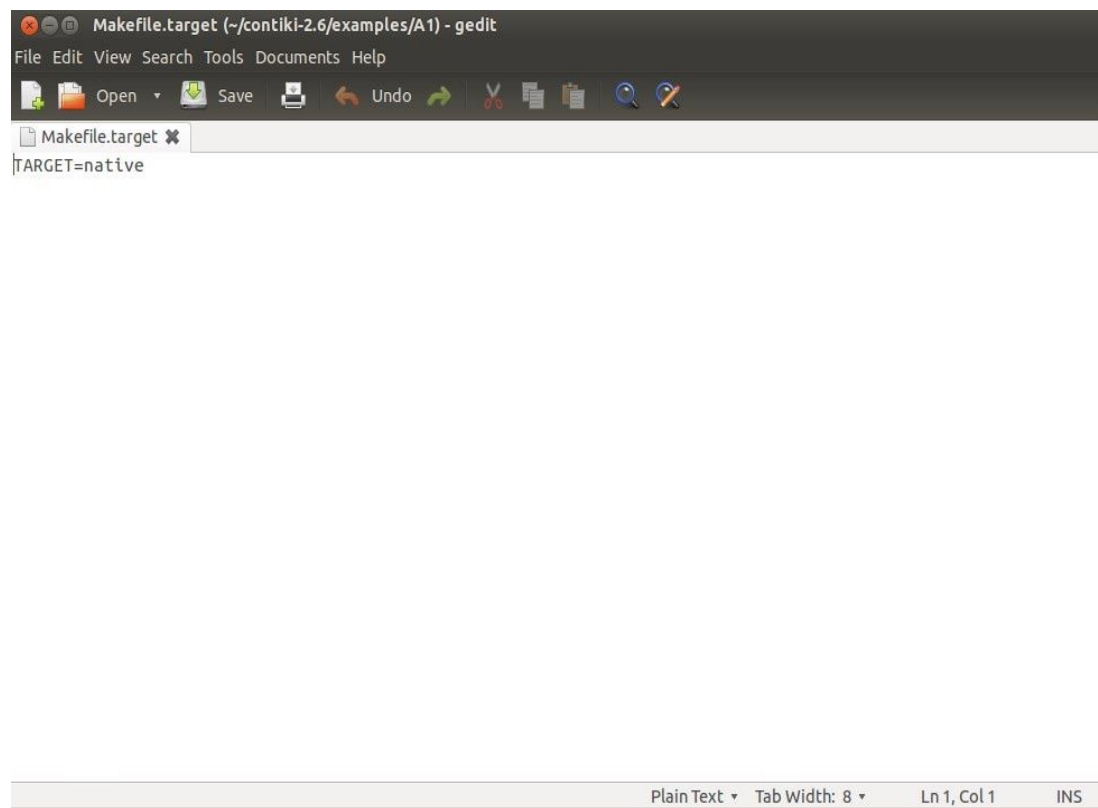
Inside A1 :



Inside Makefile:



Inside Makefile.target:



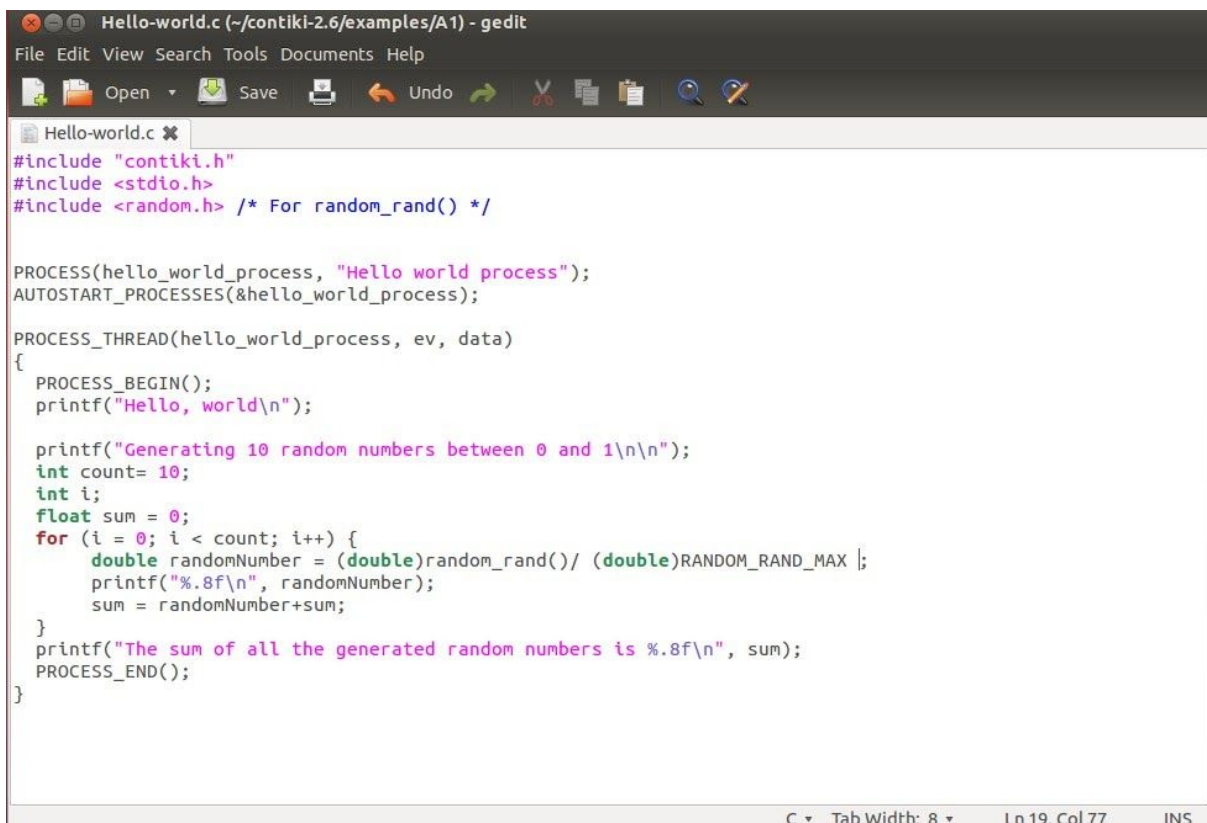
3. Execution of the command “ make Hello-world and ./Hello-world.native “ resulted output :

Printing Hello World :

```
user@instant-contiki: ~/contiki-2.6/examples/A1
File Edit View Search Terminal Help
user@instant-contiki:~$ cd contiki-2.6
user@instant-contiki:~/contiki-2.6$ cd examples
user@instant-contiki:~/contiki-2.6/examples$ cd A1
user@instant-contiki:~/contiki-2.6/examples/A1$ make Hello-world
using saved target 'native'
gcc -DCONTIKI=1 -DCONTIKI_TARGET_NATIVE=1 -Wall -g -I/usr/local/include -O0 -I.
-I../platform/native/ -I../platform/native/dev -I../cpu/native/ -I../cpu/native/net -I../core/dev -I../core/lib -I../core/net -I../core/net/mac -I../core/net/rime -I../core/net/rpl -I../core/sys -I../core/cfs -I../core/ctk -I../core/lib/ctk -I../core/loader -I../core/ -I../platform/native/ -DAUTOSTART_ENABLE -c Hello-world.c -o Hello-world.co
gcc -WL,-Map=contiki-native.map,-export-dynamic Hello-world.co contiki-native.a
-o Hello-world.native
rm Hello-world.co
user@instant-contiki:~/contiki-2.6/examples/A1$ ./Hello-world.native
Contiki 2.6 started
Rime started with address 2.1
MAC nullmac RDC nullrdc NETWORK Rime
Hello, world

```

4. Explanation of code for generating Random numbers :



```

Hello-world.c (~/.contiki-2.6/examples/A1) - gedit
File Edit View Search Tools Documents Help
Open Save Undo
Hello-world.c
#include "contiki.h"
#include <stdio.h>
#include <random.h> /* For random_rand() */

PROCESS(hello_world_process, "Hello world process");
AUTOSTART_PROCESSES(&hello_world_process);

PROCESS_THREAD(hello_world_process, ev, data)
{
    PROCESS_BEGIN();
    printf("Hello, world\n");

    printf("Generating 10 random numbers between 0 and 1\n\n");
    int count= 10;
    int i;
    float sum = 0;
    for (i = 0; i < count; i++) {
        double randomNumber = (double)random_rand() / (double)RANDOM_RAND_MAX ;
        printf("%.8f\n", randomNumber);
        sum = randomNumber+sum;
    }
    printf("The sum of all the generated random numbers is %.8f\n", sum);
    PROCESS_END();
}
C Tab Width: 8 Ln 19, Col 77 INS

```

Step 1 : Added package `#include <random.h>`

Step 2 : used `random_rand()` and `RANDOM_RAND_MAX` to calculate random numbers from 0 to 1.

`RANDOM_RAND_MAX` is a constant whose default value may vary between implementations. In order to get a random number between 0 and 1 we had divided the random number with the maximum possible random number.

Step 3 : Added for loop with max value of 10 and iterated for 10 times to generate 10 random numbers

Step 4 : Calculated sum on doing add operation for each `randomNumber` and used `printf` in order to print `randomNumbers` and `sum`

Code :

```
double randomNumber = (double) random_rand() / (double) RANDOM_RAND_MAX

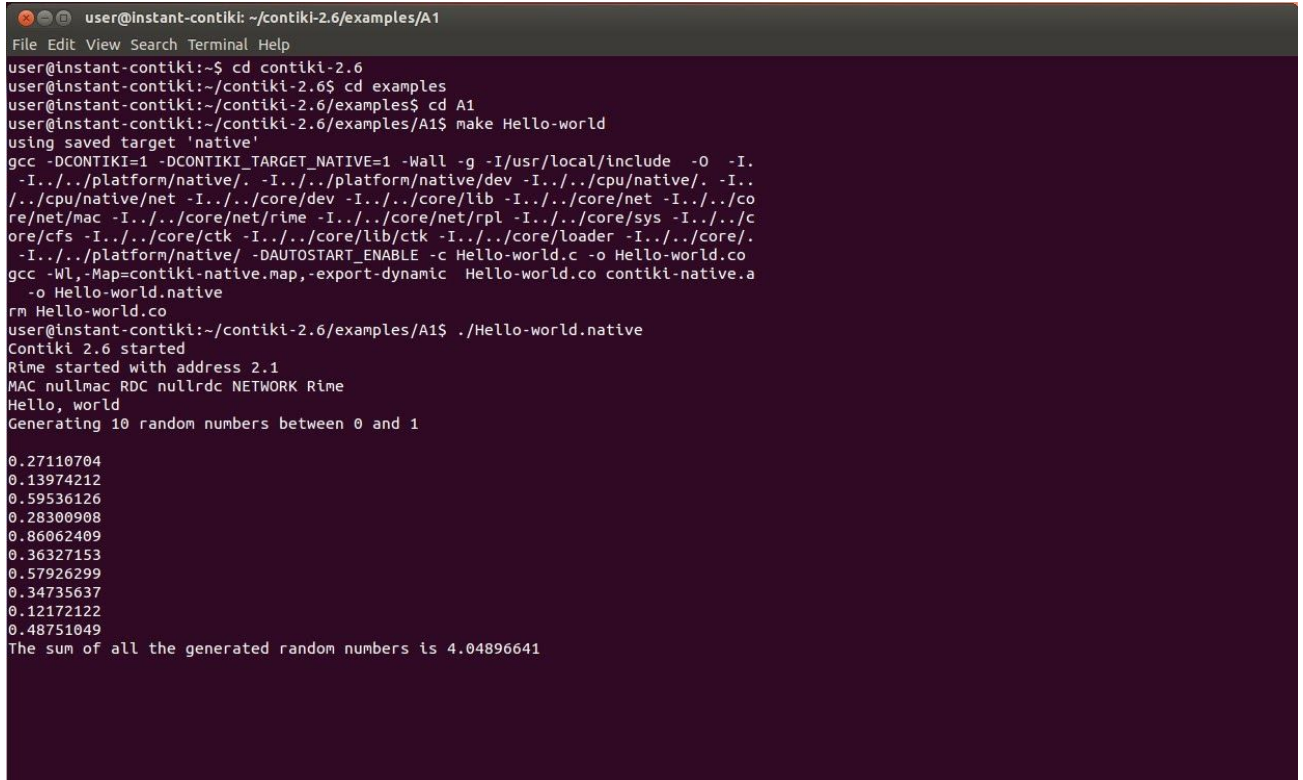
for (i = 0; i < count; i++) {
    double randomNumber = (double)random_rand() / (double)RANDOM_RAND_MAX ;
    printf("%.8f\n", randomNumber);
}
```

```

    sum = randomNumber+sum;
}
printf("The sum of all the generated random numbers is %.8f\n", sum);

```

5. Printing random Numbers and their Sum :



```

user@instant-contiki: ~/contiki-2.6/examples/A1
File Edit View Search Terminal Help
user@instant-contiki:~$ cd contiki-2.6
user@instant-contiki:~/contiki-2.6$ cd examples
user@instant-contiki:~/contiki-2.6/examples$ cd A1
user@instant-contiki:~/contiki-2.6/examples/A1$ make Hello-world
using saved target 'native'
gcc -DCONTIKI=1 -DCONTIKI_TARGET_NATIVE=1 -Wall -g -I/usr/local/include -O -I.
-I../platform/native/. -I../platform/native/dev -I../cpu/native/. -I../cpu/native/net -I../core/dev -I../core/lib -I../core/net -I../core/net/mac -I../core/net/rime -I../core/net/rpl -I../core/sys -I../core/cfs -I../core/ctk -I../core/lib/ctk -I../core/loader -I../core/. -I../platform/native/ -DAUTOSTART_ENABLE -c Hello-world.c -o Hello-world.co
gcc -WL,-Map=contiki-native.map,-export-dynamic Hello-world.co contiki-native.a
-o Hello-world.native
rm Hello-world.co
user@instant-contiki:~/contiki-2.6/examples/A1$ ./Hello-world.native
Contiki 2.6 started
Rime started with address 2.1
MAC nullmac RDC nullrdc NETWORK Rime
Hello, world
Generating 10 random numbers between 0 and 1
0.27110704
0.13974212
0.59536126
0.28300908
0.86062409
0.36327153
0.57926299
0.34735637
0.12172122
0.48751049
The sum of all the generated random numbers is 4.04896641

```

-----END-----