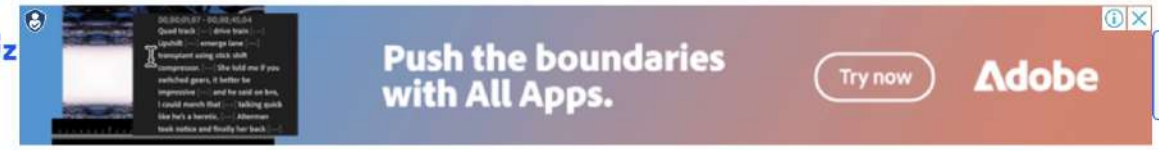
Programiz
C Online
Compiler



Programiz
PRO ›

main.c

Run

Output

Clear

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>

// Simulated hash function (very simple for demo)
unsigned int simple_hash(const char *msg) {
    unsigned int hash = 0;
    for (int i = 0; msg[i] != '\0'; i++) {
        hash = (hash * 31 + msg[i]) % 997;  // Small prime modulus
    }
    return hash;
}

// Simulated RSA: signature = hash^d mod n
unsigned int rsa_sign(unsigned int hash,
```

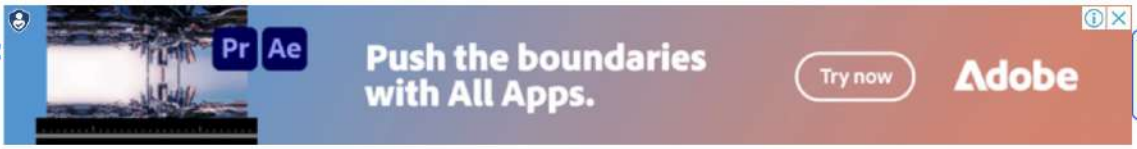
```
Message: "Hello World"
Hash: 470

== RSA Signatures (no randomness) ==
Signature 1: 105
Signature 2: 105
✅ Same signature for same message.

== DSA Signatures (random k) ==
Signature 1: (r=9, s=9)
Signature 2: (r=2, s=7)
✅ Different signatures for same message (as expected).


=== Code Execution Successful ===
```

Programiz
C Online
Compiler



Programiz
PRO ›

main.c

Run

Output

Clear

```
        &r1, &s1);
68      dsa_sign(hash, dsa_p, dsa_q, dsa_g, dsa_x,
        &r2, &s2);
69
70      printf("\n== DSA Signatures (random k) ==\n"
        );
71      printf("Signature 1: (r=%u, s=%u)\n", r1, s1
        );
72      printf("Signature 2: (r=%u, s=%u)\n", r2, s2
        );
73      if (r1 != r2 || s1 != s2)
74          printf("✅ Different signatures for same
            message (as expected).\n");
75
76      return 0;
77  }
78
79
```

```
Message: "Hello World"
Hash: 470

== RSA Signatures (no randomness) ==
Signature 1: 105
Signature 2: 105
✅ Same signature for same message.

== DSA Signatures (random k) ==
Signature 1: (r=9, s=9)
Signature 2: (r=2, s=7)
✅ Different signatures for same message (as expected).


=== Code Execution Successful ===
```