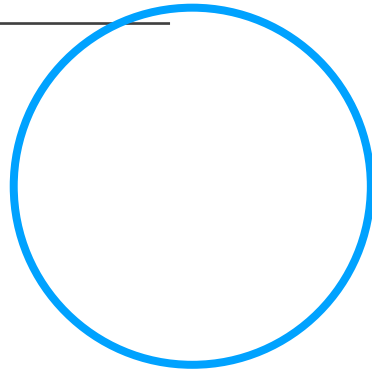


BigInt

Integers of Arbitrary Length



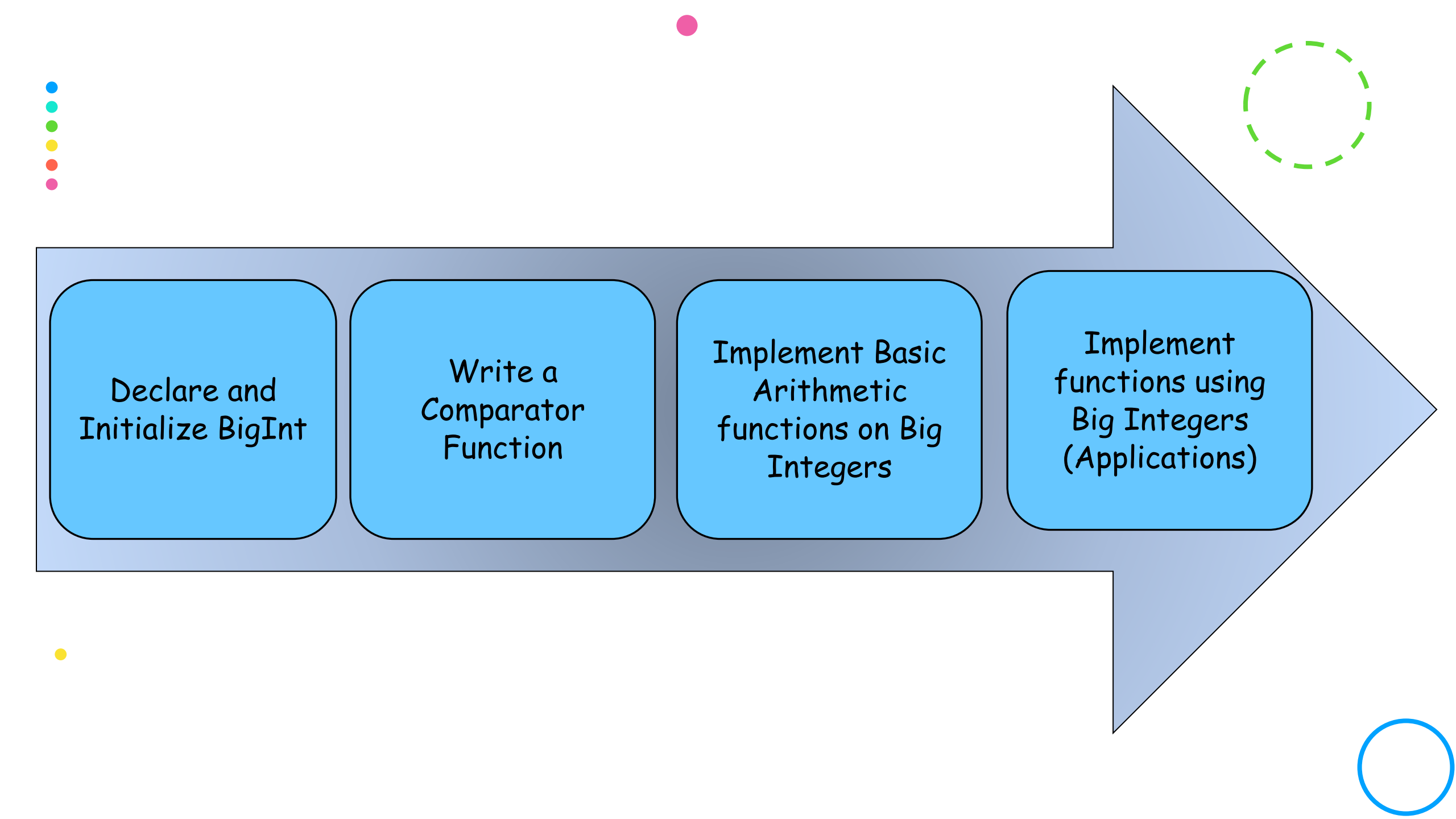
PROBLEM

The maximum limit of *Unsigned Long Long Int* in C/C++ is 18446744073709551615, a 20 digit number. While languages like Java support classes of *BigIntegers* (100 digit numbers). C by default has no such support. This project aims to bring that support to the C language along with basic arithmetic operations like Comparison, Addition, Subtraction and Multiplication along with applications such as Factorial, Fibonacci etc.

SOLUTION

Declare character arrays which are the data structure to be used to represent BigInt and initialize elements to 0.

We know that arrays/strings can store upto 10^7 items, so if we store each digit of our number into each of the memory locations then we will be able to store 10^7 digits. (which is quite big as compared to just 19 digits.)



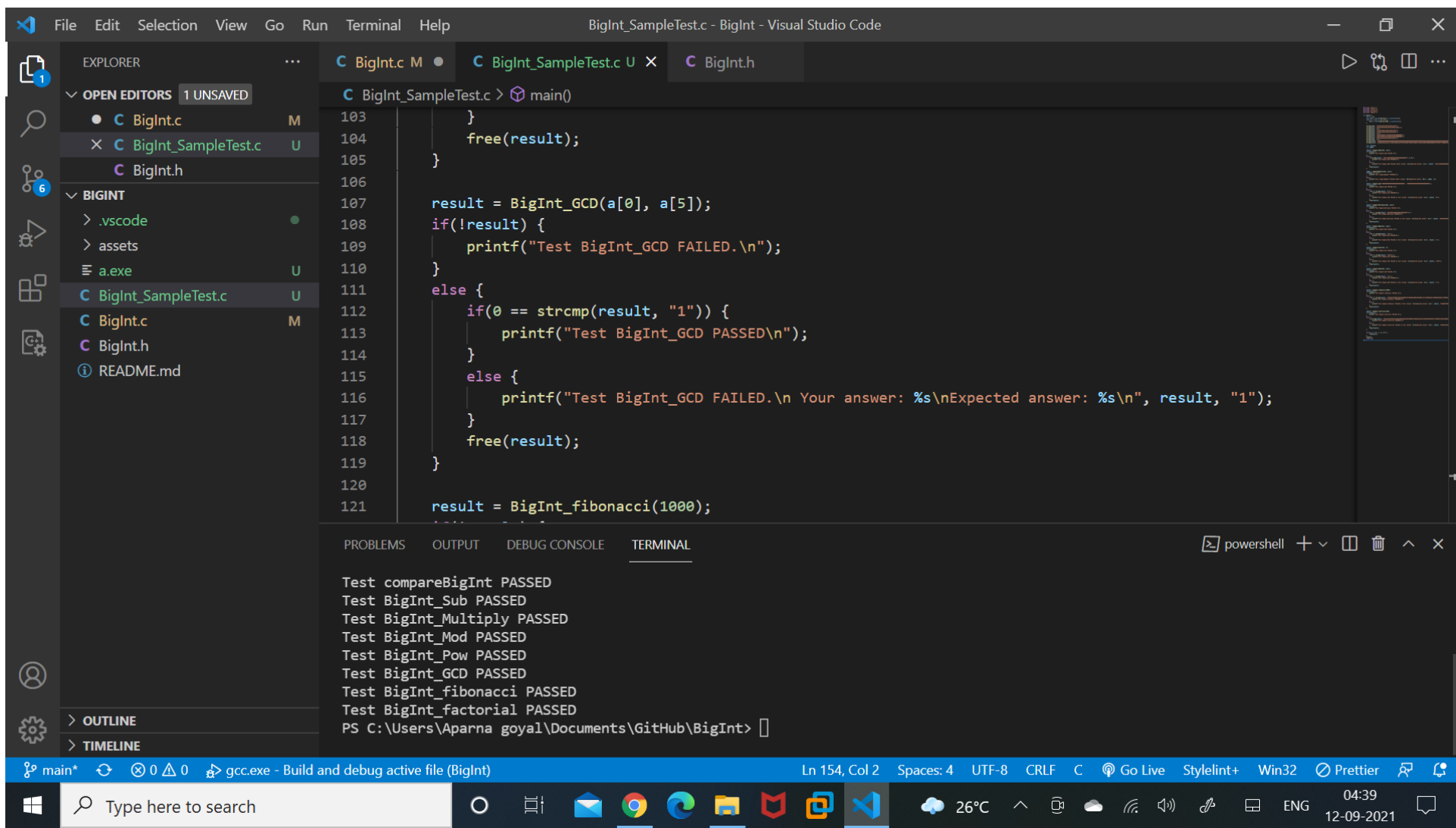
Declare and
Initialize BigInt

Write a
Comparator
Function

Implement Basic
Arithmetic
functions on Big
Integers

Implement
functions using
Big Integers
(Applications)

DEMO



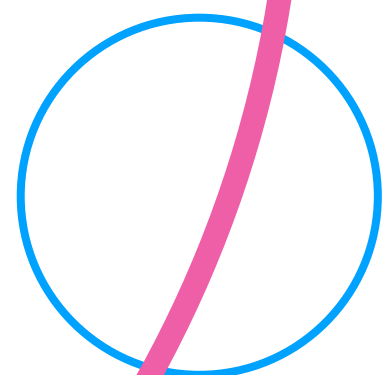
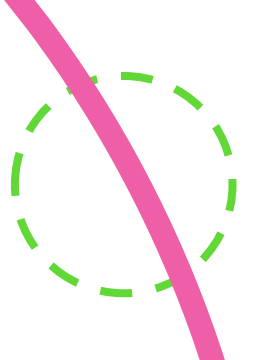
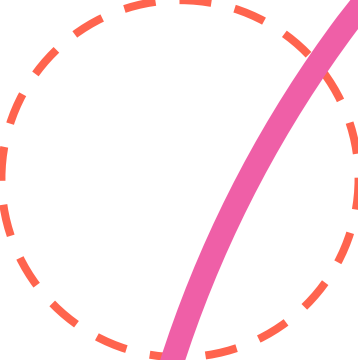
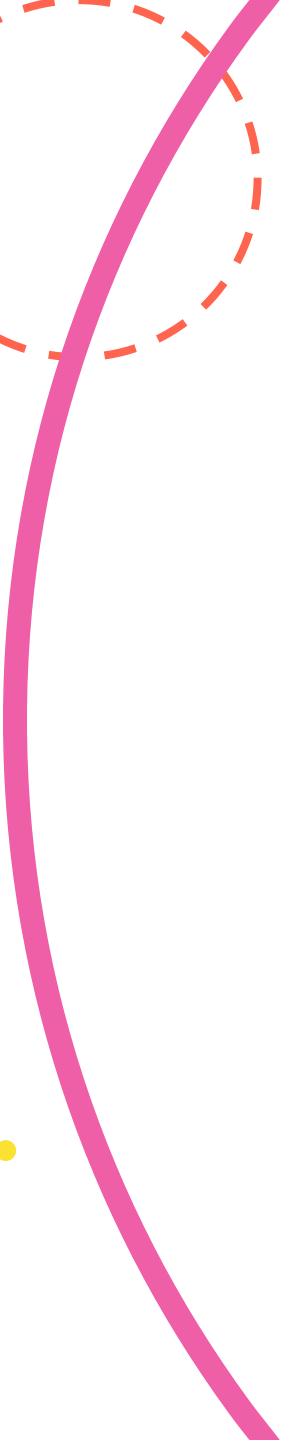


```
File Edit Selection View Go Run Terminal Help
BigInt_SampleTest.c - BigInt - Visual Studio Code

EXPLORER
OPEN EDITORS 1 UNSAVED
  C BigInt.c M
  C BigInt_SampleTest.c U
  C BigInt.h
BIGINT
  .vscode
  assets
  a.exe U
  C BigInt_SampleTest.c U
  C BigInt.c M
  C BigInt.h
  README.md

C BigInt_SampleTest.c > main()
103     }
104     free(result);
105 }
106
107 result = BigInt_GCD(a[0], a[5]);
108 if(!result) {
109     printf("Test BigInt_GCD FAILED.\n");
110 }
111 else {
112     if(0 == strcmp(result, "1")) {
113         printf("Test BigInt_GCD PASSED\n");
114     }
115     else {
116         printf("Test BigInt_GCD FAILED.\n Your answer: %s\nExpected answer: %s\n", result, "1");
117     }
118     free(result);
119 }
120
121 result = BigInt_fibonacci(1000);

TERMINAL
powershell
Test compareBigInt PASSED
Test BigInt_Sub PASSED
Test BigInt_Multiply PASSED
Test BigInt_Mod PASSED
Test BigInt_Pow PASSED
Test BigInt_GCD PASSED
Test BigInt_fibonacci PASSED
Test BigInt_factorial PASSED
PS C:\Users\Aparna goyal\Documents\GitHub\BigInt>
```



THANK YOU 😊