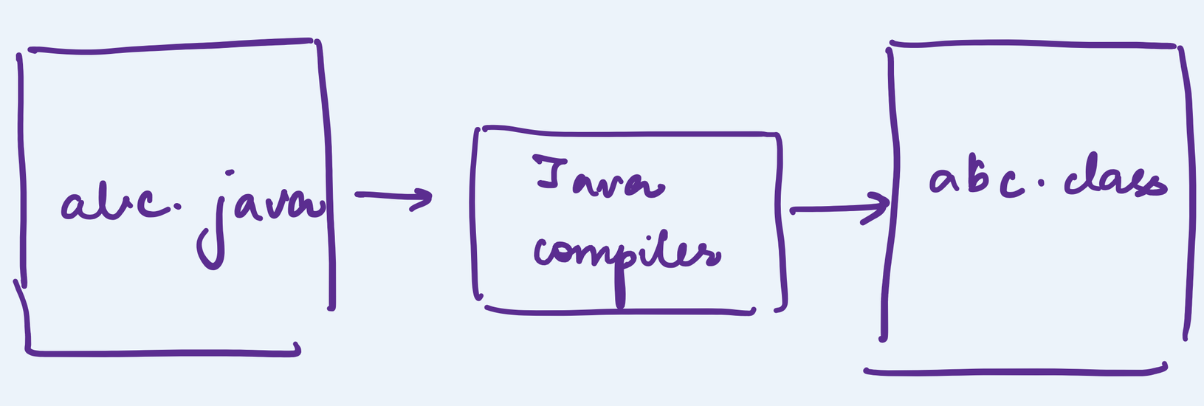
Saturday, 30 October 2021 11:57 AM

Transition to C++

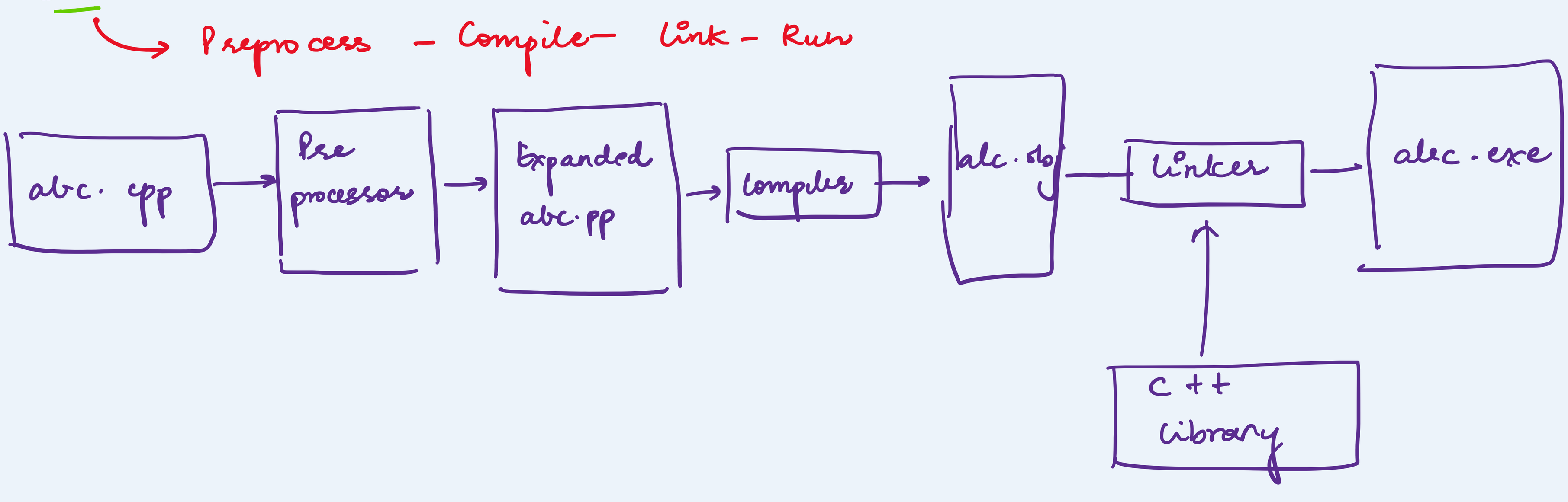
C++ → Bjarne Stroustrup , 1980s

Execution environment

Java → Compile - Load - Intrepret



C++ → Preprocess - Compile - Link - Run



Data types & variables

boolean → bool in C++

C++ string → char array / string class

1. C++ store strings ASCII characters, not UNICODE characters
2. C++ strings can be modified, Java strings are immutable
3. C++ → substr s. substr (i, n)
4. only concatenate strings with other strings, not arbitrary objects.
5. ==, !=, <=, >=, >, <

Variables & constants

int n= 5;

const int DAYS = 365;

Classes :

C++

```
class Point {
  public:
    Point();
    Point ( double xval, double yval);
  private:
    double x;
    double y;
};

Point :: Point () { x = 0, y =0; } ;
```

Java References & C++ pointers

new

1. Heap objects — new

   Car c = new Car();

   delete

2. Automatic objects

   Car c ("Honda");

   Car c = new Car ("Honda");

Memory leaks

Java → garbage collector ✓

C++ → ✗✗

Java	C++	Python
Array, Arraylist — homogenous	array, vector — homogenous	list — heterogen
int[] arr = new int[]; double char int days[];	int days [20]	list = ["apple", 2, "mango"]

vector <int> a;

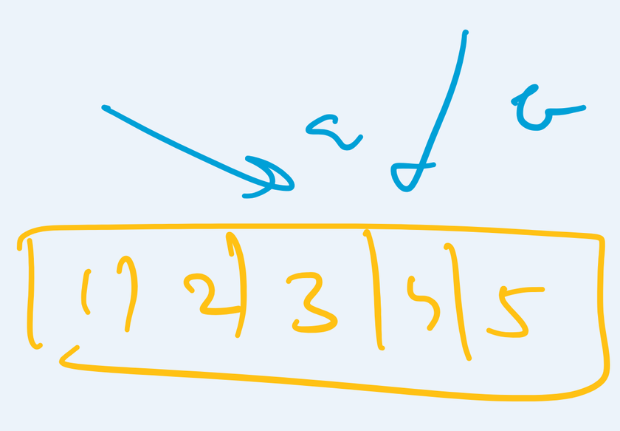
vector <int> a(100);

a. push_back(n);

a. pop_back();

for (i=0 ; i<a. size(); i++)
    sum = sum + a[i];

vector <int> b = a   [all elements are copied]



Input & output

cin | cout

<<

cout << "Hello world";

cout << "The ans is ... << x << "\n";

cin >> x ;

string input

getline (cin, input); // reads an entire line of input

Dynamic typing

In dynamic typing, type checking is performed at run time.

a = "hello"

print (type(a))

a= 5

Static typing

String s

int a;