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CISC3142
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Extra Credit

Access Control - modifiers that define control, meaning it allows access to variables within a program. ETC. Public, Private and Protected

```
public:
    int x;
private:
    int y;
protected:
    int z;
```

Classes - User defined data containing several attributes working as a blueprint to create objects

```
class newClass {
    public:
        string str;
}
```

Class scope - member variables of a class that is declared within the class can only be accessed in a class.

```
class newClass {
    String myStr= "Hello World";
}
```

~~newClass.myStr;~~ Not Possible

Constructor functions - used to create and initializing an object instance of the class;

```
class newClass{
    public:
        newClass(){
            cout << "This is a constructor";
        }
}
```

```
int main(){
    newClass classObj;
    return 0;
}
```

Data Member - variables and functions that are used in a class

```
int main() {
    int num;
    bool flagged;
    float floatNum; //data members
}
```

Default Arguments - a parameter within the original function that is assigned by the compiler if the function call does not provide the value for the argument.

```
int subtract(int x, int y=0){
    return(x-y);
}

int main(){
    subtract(20); // returns 20
    subtract(20,10) // returns 20-10 which is 10
    return 0;
}
```

Destructor function - uses ~(member function) to automatically delete when an object goes out of scope.

```
class newClass{
    public:waa
        String myStr;
        ~String(); // destructor
}
```

Dynamic Allocation - to manually allow memory allocation to be done by the programmer meaning it allows them to set array sizes dynamically during run time rather than when it is compilingsssss

wsa

```

int main() {
    int size;
    int *ptr;

    cout << "Enter size of array" << endl;
    cin << size;
    ptr = new int [size];
}

```

Encapsulation - writing and combining data members/functions in a single class

```

class theShirt {
    public:
        char size;
        string color;

        string getInfo(){
            return "Shirt size: " << size << " Shirt color:" << color;
        }
}

```

File Scope - a variable that is allowed to be accessed by all of the source file through the use of a global variable

```

static int x =100;

```

```

int main() {
    x = x+2;
}

```

Function members - operators and functions that are declared of a class

```

class myClass {
    public:
        int sub()
        {return a+b};
    private:
        int a=20, b=21;
}

```

Function member definition-

```
void myMsg(){
    string msg="Hello World";
    cout << msg;
}
```

Function scope - variables that are allowed only access and used within the scope of the function it was declared/used in.

```
void funcScope() {
    int x =20; //function variable
}

int main(){
    int x =21; // not manipulated
}
```

Inheritance - defining a class in terms of another class

```
class shape{
    ...
}

class triangle :: public shape { // deriving from the class
    ...
}
```

Member Access - determines if a class member is accessible in an expression or declaration

Names - another name for identifiers which are used to identify functions and members

```
int main(){
    int num;
    int Num; // different identifier
}
```

Namespace - provides a scope for identifiers

```

namespace first{
    int val = 20;
}
int main(){
    int val = 200;
    cout << first::val << "\n";
    return 0;
}

```

Objects - stores states in fields and methods expose its behavior

```

class shape{
    ...
}
int main(){
    shape Triangle; // creating an object
}

```

Operator functions - also known as an overloaded function, which is a redefined function that is built in C++

```

class printInfo{
    public:
        void print(str s){
            cout << "Message: " << s << endl;
        }
}

int main(){
    string world = "Hello World";
    printInfo i;
    i.print(world);
}

```

Overloading - functions that use the same name but with different parameters

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains. The concentration of the *Agrobacterium* suspension was 10⁶ cells/ml (a), 10⁷ cells/ml (b), 10⁸ cells/ml (c), 10⁹ cells/ml (d), 10¹⁰ cells/ml (e), and 10¹¹ cells/ml (f). The concentration of the *Agrobacterium* suspension was 10⁶ cells/ml (a), 10⁷ cells/ml (b), 10⁸ cells/ml (c), 10⁹ cells/ml (d), 10¹⁰ cells/ml (e), and 10¹¹ cells/ml (f). The concentration of the *Agrobacterium* suspension was 10⁶ cells/ml (a), 10⁷ cells/ml (b), 10⁸ cells/ml (c), 10⁹ cells/ml (d), 10¹⁰ cells/ml (e), and 10¹¹ cells/ml (f).

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1. The first part of the paper is a review of the literature on the effects of the 1997 Asian financial crisis on the economies of the Asian countries. It discusses the impact of the crisis on the real economy, the financial system, and the labor market. It also discusses the policy responses of the Asian countries to the crisis.

$$d(f, g) = \sum_{i=1}^n |f_i - g_i|$$

5.

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20. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ (The probability of getting a head and a tail is $\frac{1}{4}$.)

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[illegible][illegible]

```
struct newStruct {  
    int newNum;  
};
```

Subtype - a form of data that is a datatype that is related to another datatype

Supertype - a form of data that is the parent of the datatype

Virtual functions - function that is used to be redefined in the derived class.

Visibility - shows whether functions and classes can access certain variables and seeing if values can be changed

