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# Compiler Construction Lab 11

## Task 1 ( Code of Non-Fusable & Fusable Loops )

#### prog1.cc

#include <iostream>

using namespace std;

int main(){

int N = 100;

int A[N], B[N], C[N], D[N];

for(int i=0 ; i<N;i++){

B[i] = rand()%100;

}

for(int i=0; i<N; i++){

A[i] = B[i] + 1;

}

for(int i=0; i<N; i++){

C[i] = A[i] / 2;

}

for(int i=0; i<N; i++){

D[i] = 1 / (C[i]+1); *// C[i+1] is INDEX OUT OF BOUND, HENCE CHANGED*

}

}

#### prog2.cc

#include <iostream>

using namespace std;

int main(){

int N = 100;

int A[N], B[N], C[N], D[N];

for(int i=0 ; i<N;i++){

B[i] = rand()%100;

A[i] = B[i] + 1;

C[i] = A[i] / 2;

D[i] = 1 / (C[i]+1); *// C[i+1] is INDEX OUT OF BOUND, HENCE CHANGED*

}

}

## Task 2 ( Script of million executions of Non-Fusable & Fusable Loops Programs )

#### script.cc

#include <iostream>

using namespace std;

int main(){

cout<<"\n\t { Program to compare two programs million executions }\n";

int T = 1000000;

clock\_t begin\_time = clock();

cout<<"\n[+] Program 1 (Loop Non-Fusion) - No. of Executions : "<<T<<" :-\n";

for(int i = 0; i<T; i++){

system("./prog1");

if(i%100000==0){

cout<<"\n< 1/10th Part Covered >\n";

}

}

float duration = float( clock () - begin\_time ) / CLOCKS\_PER\_SEC;

cout<<"\n\t>Processor Time Taken = "<<duration<<" seconds\n";

begin\_time = clock();

cout<<"\n[+] Program 2 (Loop Fusion) - No. of Executions : "<<T<<" :-\n";

for(int i = 0; i<T; i++){

system("./prog2");

if(i%100000==0){

cout<<"\n< 1/10th Part Covered >\n";

}

}

duration = float( clock () - begin\_time ) / CLOCKS\_PER\_SEC;

cout<<"\n\t>Processor Time Taken = "<<duration<<" seconds\n\n";

}

#### Terminal Output:

