Sample Simulation Code Outline

```cpp
# include <iostring>
# include <string>
……

//Declare Functions
void funcALU (int ALU_OP, int ALU_A, int ALU_B);
void Fetch (int memLoc);
void Decode ( );
void Execute ( );
void MemAccess (int ..);
void WriteBack ();
void ControlUnit (int …);
……

//Variables
int Memory[512];        //For Memory Array
int regArray[16];       //For Register File
……

// Control Signals
int MemWrite, MemRead;
……

//Others
……

int main ( )
{
// Clear Memory and Register contents
……
//Initialize Memory contents according to the project handout.
Memory [0] = 1;
Memory [2] = -1;
……
//Read instructions from the input file and store them into memory.
……

//Print initial memory and register contents
```

……

```c
// Set PC and execute program by fetching instruction from the memory
Unit until the program ends. Looping.
……

Return 0;
}

void funcALU (int ALU_OP, int ALU_A, int ALU_B) {
……
}
void Fetch ( int memLoc) {
……
}
void Decode ( ) {
……
}
void Execute ( ){
……
}
void MemAccess ( int ..) {
……
}
void WriteBack ( ) {
……
}
void ControUnit ( int …) {
……
}
```