ADD A NEW INSTRUCTION:-

If you want to add a new instruction in the emulator you have to make some changes to source codes.

You need not make any changes in MAINFILE.C.

Directly go to Execution.c file and insert the case of that instruction and define the condition for it and call a function that will perform that operation. This function should be externally declared in one of the header files and defined in any one of the .c files where it is most appropriate.

Let’s say if we want to insert an instruction SLT (it is a compare instruction) that is of R-type instruction format that means it has two source registers rs1 and rs2 and one destination register rd.

Makes its condition as

```
case ‘s’: if(inst[i+1]==’l’&&inst[i+2]==’t’&&(inst[i+3]==’
‘||inst[i+3]==’/t’)  {
 i=i+4;
 SLT(inst,i); //call a function which performs set if less than
operation  }
```

Here, inst is a character array that stores current instruction.

The function SLT() should be externally declared in one of the header file where it is most appropriate(it is declared in compare.h).

Now, you have to define the SLT() function in the corresponding .c file(it is defined in Compare.c).

In this process, you will need to identify the source and the destination registers or immediate(if present).

There are some functions (Rtype(), Itype(), ItypeL(), Btype(), Utype(), Stype()) in the Register.c that will help you if you have a similar instruction format or you may define it on your own.

Instruction format	Function
op rd, rs1, rs2	Rtype()
op rd, rs1, imm	Itype()
op rd, imm	Utype()
op rs1, rs2, imm/label	Btype()
op rd, imm(rs1)	ItypeL()
op rs1, imm(rs2)	Stype()
op frd, frs1, frs2	FRtype()
op frd, frs1, frs2, frs3	Fmatype()
op frd, rs1	Fmvwxtype()
op rd, frs1	Fmvxwtype()
op frd, frs1	FRStype()
op frd, imm(rs1)	FStype()
op rd, frs1, frs2	FCMPtype()

Choose a function according to the instruction format.

It takes a string in which instruction is stored and index i(where pointing in the string) as argument. They specify index of register and value of immediate.

```
void SLT(char *inst, int i)

{
 Rtype(inst, i);

If(xreg[x1]<xreg[x2])

xreg[xd]=1;

else

xreg[xd]=0;

}
```

Now, write code in that function(SLT()) to perform appropriate operations.