1. Write the mips code for following code blocks.

```mips
int count = 0;
while (x != 0) {
    x = x << 1;
    count += 1;
}

count *= 2;
```

```mips
int product = 1;
for (int i = 0; i < 10; i++) {
    product *= i;
}

product = product - 10;
```
2. Extend the attached datapath to support j and beq instructions.