Avengers Battle Simulation

problem statement

Input Format

Input format is specified in the document

Constraints

Constrainst are specified in the document

Output Format

Output format is specified in the document

Sample Input 0

```
3 2 2
1000 500 300 0
1200 700 200 10
1500 800 400 20
IronMan 100
Thor 150
Loki 120
Ultron 180
BattleBegin
Attack IronMan Loki
Attack Thor Loki
Repair IronMan 50
BoostPowerByFactor Thor 2
Upgrade IronMan
AvengerStatus IronMan
AvengerStatus Thor
PrintBattleLog
BattleStatus
End
```

Sample Output 0

```
Ultron is out of fight
IronMan 1000 550 300 0
Thor 1224 700 210 12
IronMan attacks Loki
Thor attacks Loki
IronMan repaired
Thor boosted
IronMan upgrade Fail
heroes are winning
```

Sample Input 1

```
4 1 1
1200 600 250 0
```

```
1300 700 300 10
1400 750 350 20
1600 900 400 30
CaptainAmerica 110
Thanos 250
BattleBegin
Attack Thanos CaptainAmerica
AvengerStatus CaptainAmerica
AvengerStatus Thanos
End
```

Sample Output 1

```
CaptainAmerica 1200 350 500 250
Thanos 1300 700 300 10
```

Sample Input 2

```
4 2 2
1200 600 250 0
1300 700 300 10
1400 750 350 20
1600 900 400 30
CaptainAmerica 110
Hulk 200
Thanos 250
RedSkull 180
BattleBegin
Attack Thanos CaptainAmerica
AvengerStatus CaptainAmerica
Attack RedSkull Hulk
AvengerStatus Hulk
Repair Hulk 40
AvengerStatus Hulk
BoostPowerByFactor RedSkull 3
AvengerStatus RedSkull
Attack Thanos Hulk
AvengerStatus Hulk
Attack RedSkull CaptainAmerica
AvengerStatus CaptainAmerica
Attack Thanos CaptainAmerica
AvengerStatus CaptainAmerica
PrintBattleLog
BattleStatus
End
```

Sample Output 2

```
CaptainAmerica 1200 350 500 250
Hulk 1300 520 480 190
Hulk 1300 560 480 150
RedSkull 1648 900 415 33
Hulk 1300 310 730 400
CaptainAmerica 1200 170 680 430
CaptainAmerica 1200 -80 930 680
Thanos attacks CaptainAmerica
RedSkull attacks Hulk
Hulk repaired
RedSkull boosted
Thanos attacks Hulk
RedSkull attacks CaptainAmerica
Thanos attacks CaptainAmerica
```

```
CaptainAmerica suit destroyed
enemies are winning
```

Sample Input 3

```
5 3 2
1200 600 250 0
1300 700 300 10
1400 750 350 20
1600 900 400 30
1800 1000 450 40
IronMan 110
Thor 200
Hulk 300
Loki 250
Thanos 180
BattleBegin
Attack IronMan Loki
AvengerStatus Loki
Attack Thor Thanos
Repair Hulk 50
BoostPowerByFactor Thor 5
Upgrade Hulk
Attack Loki IronMan
Attack Thanos Hulk
BoostPowerByFactor Loki 10
AvengerStatus Loki
Repair IronMan 30
Upgrade Thor
Attack Loki Thor
Attack Hulk Thanos
AvengerStatus Hulk
BoostPowerByFactor Thanos 3
AvengerStatus Thanos
PrintBattleLog
BattleStatus
End
```

Sample Output 3

```
Loki 1600 790 510 140
Loki 1760 790 560 150
Hulk 1400 620 530 180
Thanos 1854 500 965 543
IronMan attacks Loki
Thor attacks Thanos
Hulk repaired
Thor boosted
Hulk upgrade Fail
Loki attacks IronMan
Thanos attacks Hulk
Loki boosted
IronMan repaired
Thor upgrade Fail
Loki attacks Thor
Hulk attacks Thanos
Thanos suit overheated
Thanos boosted
Thanos suit overheated
heroes are winning
```

Sample Input 4

```
7 3 4
1000 500 300 0
1200 600 200 10
1300 700 400 20
1500 800 350 30
1600 900 450 40
1700 1000 500 50
1800 1100 600 60
IronMan 100
Thor 150
Hulk 200
Loki 120
Thanos 180
Ultron 200
RedSkull 250
BattleBegin
Attack IronMan Loki
Attack Thor Thanos
Attack Hulk RedSkull
AvengerStatus IronMan
BoostPowerByFactor Thor 5
AvengerStatus Thor
Upgrade IronMan
AvengerStatus IronMan
Upgrade Thor
AvengerStatus Thor
Upgrade Hulk
AvengerStatus Hulk
BoostPowerByFactor Hulk 10
AvengerStatus Hulk
BoostPowerByFactor Hulk 3
AvengerStatus Hulk
PrintBattleLog
BattleStatus
End
```

Sample Output 4

```
IronMan 1000 500 300 0
Thor 1260 600 225 15
IronMan 1000 500 300 0
Thor 1260 600 225 15
Hulk 1300 700 400 20
Hulk 1430 700 450 30
Hulk 1472 700 465 33
IronMan attacks Loki
Thor attacks Thanos
Hulk attacks RedSkull
Thor boosted
IronMan upgrade Fail
Thor upgrade Fail
Hulk upgrade Fail
Hulk boosted
Hulk boosted
enemies are winning
```

Sample Input 5

```
6 2 3
1000 500 300 0
1200 600 400 10
1300 700 500 20
1400 800 600 30
1500 900 700 40
1600 1000 800 50
```

```
IronMan 150
Thor 200
Loki 250
Thanos 180
Ultron 300
BattleBegin
Attack IronMan Loki
AvengerStatus IronMan
Attack Thor Thanos
AvengerStatus Thor
Upgrade IronMan
AvengerStatus IronMan
Upgrade Thor
AvengerStatus Thor
Attack Ultron IronMan
Attack Thor Ultron
Attack IronMan Ultron
AvengerStatus Ultron
Attack Thor Ultron
PrintBattleLog
BattleStatus
End
```

Sample Output 5

```
IronMan 1000 500 300 0
Thor 1200 600 400 10
IronMan 1800 1500 1900 0
Thor 1200 600 400 10
Ultron 1500 550 1050 390
IronMan attacks Loki
Thor attacks Thanos
IronMan upgraded
Thor upgrade Fail
Ultron attacks IronMan
Thor attacks Ultron
IronMan attacks Ultron
Thor attacks Ultron
Ultron suit overheated
enemies are winning
```