

Sample Input 1

```
8 15
1 2
1 3
1 7
2 3
2 4
2 6
2 7
2 8
3 4
3 7
5 6
5 7
6 7
6 8
7 8
```

Output for the Sample Input 1

```
1
8
1 2
2 3
3 4
7 2
5 6
6 7
7 8
```

Sample Input 2

```
8 14
1 2
1 3
1 7
2 3
2 4
2 6
2 7
2 8
3 4
3 7
5 6
5 7
6 7
6 8
```

Output for the Sample Input 2

```
-1
```

Sample Input 3

```
5 7
1 2
2 3
3 4
4 5
5 3
4 2
3 1
```

Output for the Sample Input 3

```
1
5
1 2
2 3
3 4
4 5
```

Sample Input 4

```
4 6
1 2
2 3
3 4
4 1
4 2
3 1
```

Output for the Sample Input 4

```
1
4
2 1
3 1
4 1
```