

```

public boolean equals(Object o) {
    if (!o instanceof NGram) {
        return false;
    }
    if ((NGram)o).data.size() == this.data.size()) {
        ID deque<String> odeque = ((NGram) o).data;
        ID deque<String> datacopy = this.data;
        for (int i=0; i<this.data.size(); i++){
            if (!Objects.equals(odeque.removeFront(), datacopy.removeFront())){
                return false;
            }
        }
        return true;
    }
    return false;
}

@Override
public int hashCode() {
    int result = 0;
    for (String i : this.data) {
        result = result * 37;
        if (i != null) {
            result += i.hashCode();
        }
    }
    return result*37;
}

```