

1. Closure-based Calculator

Write a Groovy program that defines a method `calculate(a, b, operation)` that takes two numbers and a closure. Use this to:

- **Add two numbers**

```
def a=10

def b=5

println a+b
```

- **Subtract two numbers**

```
def a=10

def b=5

println a-b
```

- **Multiply two numbers**

```
def a=10

def b=5

println a*b
```

2. Word Frequency Counter

Ask the user for a sentence and count how many times each word appears using a map.

Input: "hello world hello"

Output:

```
hello - 2
world - 1
```

PROGRAMS:

```
def sentence="hello world hello"
def words=sentence.split(" ")
def map=[]
words.each { word->map[word]=(map[word]?:0)+1
```

```
}  
map.each {word,count->println"$word → $count"  
}
```

3. Group Strings by Length

Given a list of words, group them into a map where the key is the word length and the value is a list of words with that length.

Input: ["hi", "hello", "bye", "good", "sun"]

Output:

```
2 - ["hi"]  
3 - ["bye", "sun"]  
4 - ["good"]  
5 - ["hello"]
```

PROGRAMS:

```
def words=["hi","hello","bye","good","sun"]  
def map=[:]  
words.each{ word ->  
  def len=word.length()  
  map[len]=(map[len]?[:])+word  
}  
map.each {k,v ->  
  println "$k → $v"  
}
```