통계학 세미나 hw1

212STG18 예지혜

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1번. 행렬곱 함수 만들기

```
HangYeolGop <- function(A,B){
  if(ncol(A) != nrow(B)){
    print("Unable to compute matrix multiplication!")
    return()
  }
  n <- nrow(A)
  m <- ncol(A)
  p <- ncol(B)
  output <- matrix(c(1),nrow=n, ncol=p)
  for(i in 1:n){
    for(j in 1:p){
      value <- 0
      for(k in 1:m){
        value <- value + A[i,k] * B[k,j]
      }
      output[i,j] <- value
    }
  }
  return(output)
}

#test1
A <- matrix(c(1,2,3,4,5,6),nrow = 2)
B <- matrix(c(1,2,3), nrow = 3)
A;B;HangYeolGop(A,B)
```

```
##      [,1] [,2] [,3]
## [1,]    1    3    5
## [2,]    2    4    6
```

```
##      [,1]
## [1,]    1
## [2,]    2
## [3,]    3
```

```
##      [,1]
## [1,]   22
## [2,]   28
```

```
#test2
A <- matrix(c(1,2,3,4,5,6), nrow = 2)
B <- matrix(c(1,1,1,1), nrow = 2)
A;B;HangYeolGop(A,B)
```

```
##      [,1] [,2] [,3]
## [1,]    1    3    5
## [2,]    2    4    6
```

```
##      [,1] [,2]
## [1,]    1    1
## [2,]    1    1
```

```
## [1] "Unable to compute matrix multiplication!"
```

```
## NULL
```

2번. 1번 함수와 A%*%B 비교

```
A <- matrix(c(2,3,3,2,4,1), nrow = 2)
B <- matrix(c(-2,3,2,4,-1,1,2,1,5), nrow = 3)
A;B
```

```
##      [,1] [,2] [,3]
## [1,]    2    3    4
## [2,]    3    2    1
```

```
##      [,1] [,2] [,3]
## [1,]   -2    4    2
## [2,]    3   -1    1
## [3,]    2    1    5
```

```
HangYeolGop(A,B)
```

```
##      [,1] [,2] [,3]
## [1,]   13    9   27
## [2,]    2   11   13
```

```
A%*%B
```

```
##      [,1] [,2] [,3]
## [1,]   13    9   27
## [2,]    2   11   13
```

값이 동일하다.