

06. Quiz

Linear Regression

- 최소 제곱법(Method of Least Square)
 - LSM(Least Squares Method)
 - 최소제곱 회귀방정식

$$Slope = CorrCoef \times \frac{SD_y}{SD_x} = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sum (x - \bar{x})^2}$$

$$Intercept = \bar{y} - (slope \cdot \bar{x})$$

Quiz [1-2]

- Declaration and Prototypes

```
#ifndef DATATYPE
#define DATATYPE

#define SCANFORMAT "%f"
#define PRNFORMAT "%7.3f "

typedef float EType;
#endif

#ifndef MULTIVRAIATE
#define MULTIVRAIATE
typedef struct
{
    int rows;
    int cols;
    char **headers;
    int length;
    EType **elem;
} MultiVariateSet;
#endif
```

Quiz [1-3]

- Declaration and Prototypes

```
static MultiVariateSet *CreateMultiVariateSet(const char *filename);  
static void DestroyMultiVariateSet(MultiVariateSet *variateSet);  
static void PrintMultiVariateSet(MultiVariateSet *variateSet);  
  
static float ComputeCovariance(MultiVariateSet *variateSet);  
static float ComputeCorrelation(MultiVariateSet *variateSet);
```

Quiz [1-4]

- Main

```
int main(int argc, char *argv[])
{
    MultiVariateSet *setVariate = NULL;

    setVariate = CreateMultiVariateSet(PATH_FILE);
    PrintMultiVariateSet(setVariate);
    printf("\n");

    printf("Covariance = %6.3f\n", ComputeCovariance(setVariate));
    printf("Correlation = %6.3f\n", ComputeCorrelation(setVariate));
    printf("\n");

    DestroyMultiVariateSet(setVariate);
    return 0;
}
```