

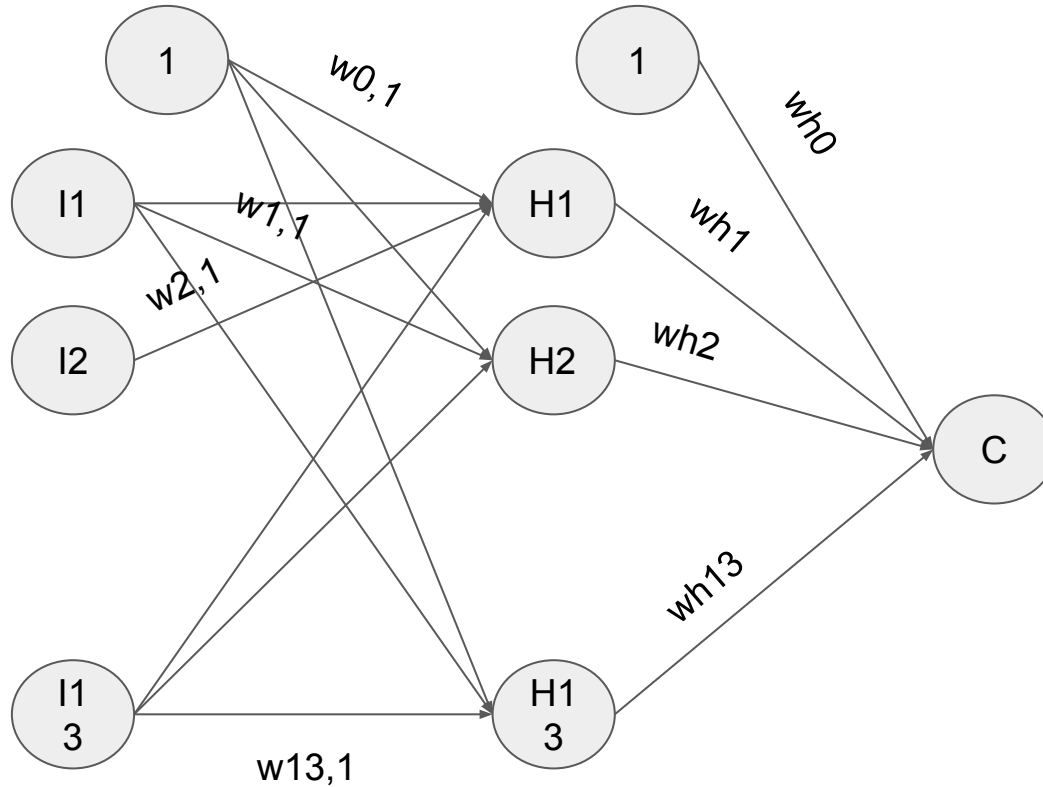
KECERDASAN BUATAN NEURAL NETWORK

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SOAL!



Epoch = 10000

Miu = 0.1

Data = 270

- Absence = 150
- Presence = 120

Input = 13

Hidden Layer = 1

Hidden Input = 13

Ouput = 1

1. Random nilai w, wh

```
for(i=0; i<=13; i++)
{
    for(j=1; j<=13; j++)
    {
        w[i][j] = rand()%100/99.1938129;
        printf("w[%d][%d] = %f\n\n", i, j, w[i][j]);
    }
}

for(i=0; i<=13; i++)
{
    wh[i] = rand()%100/99.21372819372;
    printf("wh[%d] = %f\n", i, wh[i]);
}
```

2. Inisialisasi data supervised dari file txt

```
freopen("input.txt", "r", stdin);
scanf("%d", &z);
for( int r= 1; r <= z; r++)
{
    for(j=1; j<=13; j++)
    {
        scanf("%f", &I[j][r]);
        printf("I[%d][%d] = %f\n", j, r, I[j][r]);
    }
    scanf("%f", &target[r]);
    printf("Target[%d] = %f\n", r, target[r]);
}
```

3. Mencari nilai $h[i]$ & Sigmoidnya

```
for(i=1; i<=z; i++)
{
    for(j=1; j<=13; j++)
    {
        h[j] = 1*w[0][j] + I[1][i]*w[1][j] + I[2][i]*w[2][j] + I[3][i]*w[3][j] + I[4][i]*w[4][j] + I[5][i]*w[5][j]
            + I[6][i]*w[6][j] + I[7][i]*w[7][j] + I[8][i]*w[8][j] + I[9][i]*w[9][j] + I[10][i]*w[10][j] + I[11][i]*w[11][j] + I[12][i]*w[12][j] + I[13][i]*w[13][j];
        sig[j] = 1/(1+exp(-h[j]));
        h[j] = sig[j];
        printf("%d h[%d] = %f\n",i, j, h[j]);
    }
}
```

4. Mencari Nilai C dan Sigmoidnya & error

```
C = 1*wh[0] + h[1]*wh[1] + h[2]*wh[2] + h[3]*wh[3] + h[4]*wh[4] + h[5]*wh[5] + h[6]*wh[6] + h[7]*wh[7] + h[8]*wh[8] + h[9]*wh[9] + h[10]*wh[10] + h[11]*wh[11]
    + h[12]*wh[12] + h[13]*wh[13];
sigc[i] = 1/(1+exp(-C));
printf("C = %f\nsigc = %f\n", C, sigc[i]);

printf("target[%d] = %d\n", i, target[i]);
error = target[i] - sigc[i];
printf("Error = %f\n", error);
```

5. Mencari nilai dC (differensial C)

```
printf("\nBACK PROPAGASI\n");  
dc = sigc[i]*(1-sigc[i])*(target[i]-sigc[i]);  
printf("dc = %f\n",dc);
```

6. Mencari nilai dwh dan wh

```
dwh[0] = miu*1*dc;
wh[0] = wh[0] + dwh[0];
printf("dwh[0] = %f\nwh[0] = %f\n", dwh[0], wh[0]);
for(k=1; k<=13; k++)
{
    dwh[k] = miu*h[k]*dc;
    wh[k] = wh[k] + dwh[k];
    printf("dwh[%d] = %f\nwh[%d] = %f\n", k, dwh[k], k, wh[k]);
}
```


7. Mencari nilai dh

```
for(l=1; l<=13; l++)
{
    dh[l] = h[l]*(1-h[l])*wh[l]*dc;
    printf("dh[%d] = %f\n", l, dh[l]);
}
```

8. Mencari nilai dwi dan w (BACK PROPAGASI)

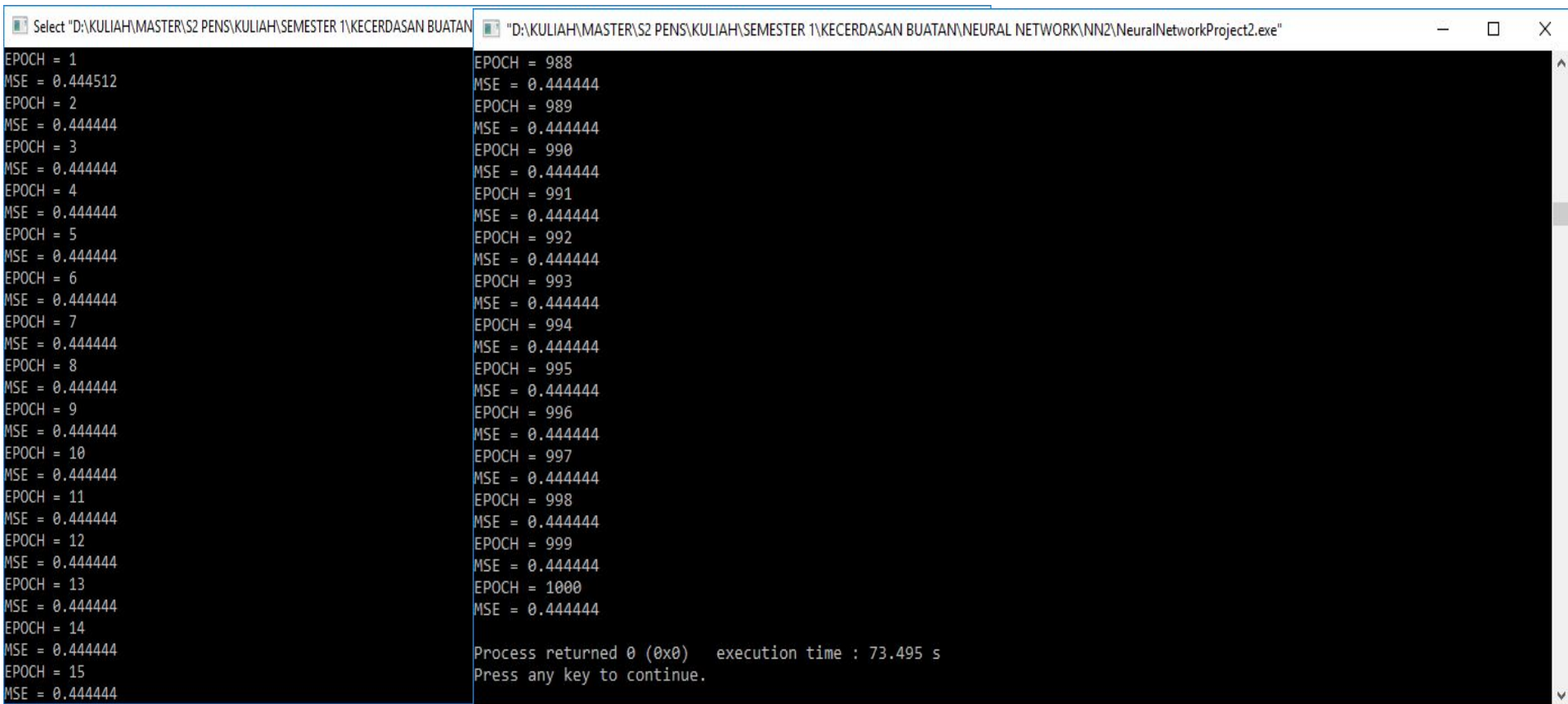
```
for(p=1; p<=13; p++)
{
    dwi[0][p] = miu*1*dh[p];
    w[0][p] = w[0][p] + dwi[0][p];
    printf("w[0][%d] = %f\n",p,dwi[0][p]);
}
for(m=1; m<=13; m++)
{
    for(n=1; n<=13; n++)
    {
        dwi[m][n] = miu*I[n][i]*dh[n];
        w[m][n] = w[m][n] + dwi[m][n];
        printf("dwi[%d][%d] = %f\n wi[%d][%d] = %f\n",m,n, dwi[m][n],m,n,w[m][n]);
    }
}
printf("\n===== GANTI INPUT =====\n");
```

9. Mencari nilai MSE disetiap epoch

```
for(o=1; o<=270; o++)
{
    if(sigc[o]>=0.8)
    {
        sigc[o]=1;
    }
    else if(sigc[o]<=0.2)
    {
        sigc[o] =0;
    }
}

SSE = 0;
for(q=1;q<=z; q++)
{
    SSE = SSE+pow((target[q]-sigc[q]),2);
}
MSE=SSE/z;
printf("MSE = %f\n",MSE);
```

LEARNING - MSE ERROR



```
Select "D:\KULIAH\MASTER\S2 PENS\KULIAH\SEMESTER 1\KECERDASAN BUATAN"
EPOCH = 1
MSE = 0.444512
EPOCH = 2
MSE = 0.444444
EPOCH = 3
MSE = 0.444444
EPOCH = 4
MSE = 0.444444
EPOCH = 5
MSE = 0.444444
EPOCH = 6
MSE = 0.444444
EPOCH = 7
MSE = 0.444444
EPOCH = 8
MSE = 0.444444
EPOCH = 9
MSE = 0.444444
EPOCH = 10
MSE = 0.444444
EPOCH = 11
MSE = 0.444444
EPOCH = 12
MSE = 0.444444
EPOCH = 13
MSE = 0.444444
EPOCH = 14
MSE = 0.444444
EPOCH = 15
MSE = 0.444444

"D:\KULIAH\MASTER\S2 PENS\KULIAH\SEMESTER 1\KECERDASAN BUATAN\NEURAL NETWORK\NN2\NeuralNetworkProject2.exe"
EPOCH = 988
MSE = 0.444444
EPOCH = 989
MSE = 0.444444
EPOCH = 990
MSE = 0.444444
EPOCH = 991
MSE = 0.444444
EPOCH = 992
MSE = 0.444444
EPOCH = 993
MSE = 0.444444
EPOCH = 994
MSE = 0.444444
EPOCH = 995
MSE = 0.444444
EPOCH = 996
MSE = 0.444444
EPOCH = 997
MSE = 0.444444
EPOCH = 998
MSE = 0.444444
EPOCH = 999
MSE = 0.444444
EPOCH = 1000
MSE = 0.444444

Process returned 0 (0x0)   execution time : 73.495 s
Press any key to continue.
```