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| [Company name] |
| Intelligent Systems |
| [Document subtitle] |

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# Part 1

## Forward Pass

### X1



= 0.1 \* 0.1 + 0.1 \* 0.1 + 0.1 \* 1

= 0.12



= 1/ 1 + e^(-0.12)

=1 / 1.8869

=0.5299



= 0.2 \* 0.1 + 0.1 \* 0.1 + 0.1 \* 1

= 0.13



= 1/ 1 + e^(-0.13)

=1 / 1.8780

=0.5324



= 0.1 \* 0.5299 + 0.1 \* 0.5324 + 0.1 \* 1

= 0.2062



= 1/ 1 + e^(-0.2062)

=1 / 1.8136

=0.5513



= 0.1 \* 0.5299 + 0.2 \* 0.5324 + 0.1 \* 1

= 0.2594



= 1/ 1 + e^(-0.2594)

=1 / 1.7715

=0.5645

### X2



= 0.1 \* 0.1 + 0.1 \* 0.2 + 0.1 \* 1

= 0.13



= 1/ 1 + e^(-0.13)

=1 / 1.8780

=0.5325



= 0.2 \* 0.1 + 0.1 \* 0.1 + 0.1 \* 1

= 0.14



= 1/ 1 + e^(-0.14)

=1 / 1.8693

=0.5350



= 0.1 \* 0. 5325 + 0.1 \* 0. 5350 + 0.1 \* 1

= 0.2067



= 1/ 1 + e^(-0.2067)

=1 / 1.8132

=0.5515



= 0.1 \* 0.5325 + 0.2 \* 0.5350 + 0.1 \* 1

= 0.2603



= 1/ 1 + e^(-0.2603)

=1 / 1.7708

=0.5647

## Calculating the error

### X1

Squared error function



= 0.5 \* (1 – 0.5513)^2

=0.1006



= 0.5 \* (0 – 0.5645)^2

= 0.1593



= 0.1006 + 0.1593

=0.2599

### X2

Squared error function



= 0.5 \* (0 – 0.5515)^2

=0.1521



= 0.5 \* (1 – 0.5647)^2

= 0.0947



= 0.1521 + 0.0947

=0.2468

## Backward Propagation

### W5

### W6

0.07354751

### W7

### W8:

0.19916741399

### W11

### W12

0.09841131756

### W1

### X1

= 0.1

### X2

= 0.1

### W2

### X1

### W3

### W4

### W10

### W9

Enter the learn rate and stuff here

Therefore E02/outh1 = abc \* w6

+ both answers together = Etot/outh1













\frac{\partial E\_{tot}}{\partial w\_{1}} = \frac{\partial E\_{tot}}{\partial out\_{h1}} \* \frac{\partial out\_{h1}}{\partial net\_{h1}} \* \frac{\partial net\_{h1}}{\partial w\_{1}}

W2 and w4





This needs to be out h2

Net/out =

