**METODE NUMERIK**

**(Tugas 5.1)**

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**PROGRAM STUDI S-1 TEKNIK INFORMATIKA**

**FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM**

**UNIVERSITAS PADJADJARAN**

**JATINANGOR**

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*// deklarasi matrix awal*

a = [4 -1 1;

4 -8 1;

-2 1 5];

b = [7; -21; 15];

L = [1 0 0; 0 1 0; 0 0 1];

*// dekomposisi a menjadi L dan U*

*// cari 3 komponen buat matrix L*

L21 = (-1 \* a(2,1))/(a(1,1));

i = 1;

while(i < 4)

a(2, i) = (a(1, i) \* L21) + a(2, i);

i = i + 1;

end

L31 = (-1 \* a(3,1))/(a(1,1));

i = 1;

while(i < 4)

a(3, i) = (a(1, i) \* L31) + a(3, i);

i = i + 1;

end

L32 = (-1 \* a(3,2))/(a(2,2));

i = 1;

while(i < 4)

a(3, i) = (a(2, i) \* L32) + a(3, i);

i = i + 1;

end

L(2, 1) = -1 \* L21;

L(3, 1) = -1 \* L31;

L(3, 2) = -1 \* L32;

*// cari y*

Y = [0;0;0];

Y(1,1) = b(1,1)/L(1,1);

Y(2, 1) = (b(2, 1) - Y(1,1) \* L(2, 1)) / L(2, 2);

Y(3, 1) = (b(3, 1) - Y(1,1) \* L(3, 1) - Y(2,1) \* L(3, 2)) / L(3, 3);

*// cari x*

X = [0;0;0];

X(3, 1) = Y(3, 1) / a(3, 3);

X(2, 1) = (Y(2, 1) - X(3, 1) \* a(2, 3) )/ a(2, 2);

X(1, 1) = (Y(1, 1) - X(3, 1) \* a(1, 3) - X(2, 1) \* a(1, 2) ) / a(1, 1);

