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LAMPIRAN

Lampiran 1. Source Code Enkripsi Hill Cipher

```
k = [5 14 7; 20 2 19; 17 9 24];
plain = fopen('plainteks.txt', 'r');
plain = fread(plain, 'char');

lp = length(plain)
z = mod(lp, 3);

if z ~= 0
    e = 3-z ;
    for i = 1:e
        plain(lp+i) = 'x';
    end
end

% enkripsi
for i=1:3:lp
    s = double(plain(i:i+2))'-32;
    s = s';
    c(i:i+2) = mod(k*s, 95);
end

c = char(c+32)
cipher = fopen('cipherteks.txt', 'w');
fwrite(cipher, c);
disp('Pesan berhasil dienkrpsi');
```

Lampiran 2. Source Code Dekripsi Hill Cipher

```
k = [5 14 7; 20 2 19; 17 9 24];
cipher = fopen('cipherteks.txt', 'r');
cipher = fread(cipher);
lc = length(cipher)

z = mod(lc, 3);
if z ~= 0
    e = 3-z;
    for i = 1:e
        cipher(lc+i) = 'x';
    end
end

d = round(det(k));

adj = round(inv(k)*d);
adj = mod(adj, 95);

%invers determinan
d = mod(d, 95);
```

```

id = 0;
for i=1:95
    if mod(d*i,95) == 1
        id = i;
    end
end

%invers k
ik = mod(adj*id,95);

for i=1:3:lc
    r = double(cipher(i:i+2))'-32;
    r = r';
    p(i:i+2) = mod(ik*r,95);
end

p = char(p+32)
plain = fopen('plainteks.txt','w');
fwrite(plain, p);
disp('Pesannya berhasil didekripsi');

```

Lampiran 3. Source Code Embedding PVD

```

file = fopen('cipherteks.txt','r');
file = fread(file);
fl = length(file);
in = [];
in = [in dec2bin(fl,7)];

for i=1:fl
    in = [in dec2bin(file(i), 7)];
end

image = imread('lily.bmp');
red = image(:,:,1);
blue = image(:,:,2);
green = image(:,:,3);

color = red;
[r,c] = size(color);
red = double(color);

next = 0;
enable = 0;
for x=0:1:r-1

    for y=0:2:c-1

        enable = 1;
        p = color(1+x,1+y:2+y);
        p = double(p);

        dn = p(1,2) - p(1,1);
    end
end

```

```

d = abs (p(1,2) - p(1,1));
li = [0 8 16 32 64 128];
ui = [7 15 31 63 127 255];

for i= 1:1:6

    if((d >= li(i)) && (d <= ui(i)))

        w = ui(i)-li(i)+1;
        t = floor(log2(w));
        if(next>=length(in))
            m = 0;
            elseif (next+t>length(in))

                b = in(1+next:length(in));
                b = zeros(1,t);
                next = next+t;
                b = bin2dec(char(b));
                m = 0;

            else
                b = in(1+next:t+next);
                next = next+t;
                b = bin2dec(char(b));
                dnew = b + li(i);
                m = abs(dnew - d)
            end
        end
    end

    if (p(1,1)>= p(1,2))

        if(dnew <= d)
            P0=[p(1,1)-ceil(m/2) p(1,2)+floor(m/2)];
        else
            P0=[p(1,1)+ceil(m/2) p(1,2)-floor(m/2)];
        end

    else
        if(dnew <= d)
            P0 = [p(1,1)+ceil(m/2) p(1,2)-floor(m/2)];
        else
            P0 = [p(1,1)-floor(m/2) p(1,2)+ceil(m/2)];
        end
    end

    if(P0(1)<0 || P0(2)<0 || P0(1)>255 || P0(2)>255)

        P0(1,1) = 0;
        P0(1,2) = 0;

        red(1+x,1+y) = P0(1,1);
        red(1+x,2+y) = P0(1,2);

        next = next-t;

```

```

        enable = 0;

        break
    end

    red(1+x,1+y) = P0(1,1);
    red(1+x,2+y) = P0(1,2);
end
end

disp('Pesan berhasil disisipkan');
red = uint8(red);
stego = cat(3,red,blue,green);
imwrite(stego, 'stego.bmp');

```

Lampiran 4. Source Code Ekstraksi PVD

```

stego = imread('stego.bmp');
color = stego(:,:,1);
[r,c] = size(color);

next=0;
msg = [];
flag = 0;
length=0;
enable = 0;

for x=0:1:r-1

    for y=0:2:c-1

        enable = 1;

        p = color(1+x,1+y:2+y);
        p = double(p);

        if(p(1,1)==0 && p(1,2)==0)
            enable = 0;
            break
        end

        d = abs(p(1,2) - p(1,1));
        lb = [0 8 16 32 64 128];
        ub = [7 15 31 63 127 255];

        for i=1:1:6

            if(d >= lb(i) && d <= ub(i))

                w = ub(i)-lb(i)+1;
                t = log2(w);
                b = d - lb(i);
                b = dec2bin(b,t);

```

```

        msg = [msg b];
        next = next+t;

        if(flag == 0 && next >= 7)
            length = bin2dec(msg(1:7))+1;
            length = length*7;
            flag = 1;
        end

        if(flag == 1 && next >= length)
            next = 1;
            for i=7:7:length-7
                finaltxt(next)=
bin2dec(msg(1+i:7+i));

                next = next+1;
            end
            enable = 0;
        end
    end
end
end
end
end

fid=fopen('cipherteks.txt','w');
fwrite(fid,finaltxt);
disp('Pesan berhasil diekstraksi');

```

Lampiran 5. Source Code MSE dan PSNR

```

image = imread('lily.bmp');
stego = imread('stego.bmp');
n = size(image);
N = n(2);
M = n(1);

MSE = sum(sum((image-stego).^2))/(M*N)
PSNR = 10*log10(2568256/MSE)

fprintf('\nMSE : %7.2f ',MSE);

fprintf('\nPSNR : %7.2f dB',PSNR);

```

Lampiran 6. Source Code Kompresi DCT

```

img = imread('stego.bmp');
for n = 1:3
    i = im2double(img(:,:,n));
    T = dctmtx(8);

    dct = @(block_struct) T *(block_struct.data) * T';
    c = blockproc(i,[8 8],dct);

```



```

mask = [1 1 1 1 0 0 0 0
        1 1 1 0 0 0 0 0
        1 1 0 0 0 0 0 0
        1 0 0 0 0 0 0 0
        0 0 0 0 0 0 0 0
        0 0 0 0 0 0 0 0
        0 0 0 0 0 0 0 0
        0 0 0 0 0 0 0 0];

c2 = blockproc(c,[8 8], @(block_struct) (mask .*
block_struct.data));
invdct = @(block_struct) T' * (block_struct.data) * T;
invc_(:,:,n)= blockproc(c2,[8 8], invdct);
end

disp('Kompresi berhasil');
imwrite(invc_,'dct.bmp');

```