ASSIGNMENT - 3

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**Q1.)**

change([],\_, \_, []).

change([H|T], H, Y, [Y|List]) :-

change(T, H, Y, List), !.

change([H|T], X, Y, [H|List]) :-

change(T, X, Y, List), !.

**Q2.)**

fib(0, 1) :- !.

fib(1, 1) :- !.

fib(N, R) :-

N > 1,

N1 is N-1,

N2 is N-2,

fib(N1, R1),

fib(N2, R2),

R is R1 + R2.

**Q3.)**

insert\_at(Alpha, 1, List, [Alpha|List]):- !.

insert\_at(Alpha, Pos, [H|L], [H|Rest]):-

Pos1 is Pos - 1,

insert\_at(Alpha, Pos1 , L, Rest).

**Q4.)**

remove\_at(1,[H|T],T, H):-

write('Deleted element: '), write(H), !.

remove\_at(Pos,[E|L],[E|ZL], \_):-

Pos1 is Pos - 1,

remove\_at(Pos1, L, ZL, \_).

**Q5.)**

range(X, X, [X]) :- !.

range(X, Y, [X|List]) :-

X =< Y,

Z is X + 1,

range(Z, Y, List).

**Q6.)**

gcd(0, X, X):-

X > 0.

gcd(X, Y, Res):-

X >= Y,

X1 is X - Y, gcd(X1, Y, Res), !.

gcd(X, Y, Res):-

X < Y, X1 is Y - X, gcd(X1, X, Res), !