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| **UID no.** | **2020300054** | **Class:** | **Comps C Batch** |
| **Experiment No.** | 3 | | |

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| **AIM:** | To evaluate the consistency of a given system of equation |
| **PROBLEM 1** | |
| **CODE:** | For a 3x3 matrix  A=[1,1,1; 1,2,3; 1,4,9]  B=[3; 4; 6]  C=[A B]  if rank(C)==rank(A) then  printf("The system is consistent\n")  C(2,:)=C(2,:)-C(1,:)  disp(C)  C(3,:)=C(3,:)-C(1,:)  disp(C)  C(3,:)=C(3,:)-3\*C(2,:)  disp(C)  printf("The rank of matrix A is %d and C is %d",rank(A),rank(C))    z=C(3,4)/C(3,3)    y=(C(2,4)-z\*C(2,3))/C(2,2)    x=(C(1,4)-y\*C(1,2)-z\*C(1,3))/C(1,1)    printf("\nThe value of x,y,z is %d,%d,%d",x,y,z)  else  disp("The system is inconsitent")  end |
| **Output:** |  |

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| **PROBLEM 2** | |
| **CODE:** | For general matrix  A=input("Enter the coefficent C: ")  b=input("Enter the right-hand side C: ")  *//[2,1,1; 1,1,1; 1,-1,2]*  *//[5;4;1]*  [m,n]=size(A)  [r,s]=size(b)  *//error handling*  if m~=n then  error("C A should be a square C")  elseif m~=r  error("A and b are of different dimension.")  end  printf("A: \n")  disp(A)  printf("B: \n")  disp(b)  C=[A b]  printf("The augmented C is \n")  disp(C)  n=size(A,1);  *//consistency check*  if rank(A)==rank(C) then  printf("The system of equation is consistent")  for i=1:n  if C(i,i)==0  printf("Swapping C rows\n")  T=C(i,i)  C(i,:)=C(modulo(i+1,n),:)  C(modulo(i+1,n),:)=T  disp(C)  end  if C(i,i)~=1  printf("\nDividing rows %d with %.2f",i,C(i,i))  C(i,:)=C(i,:)/C(i,i)  end  disp(C)  for j=i+1:n  C(j,:)=C(j,:)-C(j,i)\*C(i,:)  end  disp(C)  end  sol=[]  for i=n:-1:1  sol(i)=C(i,n+1)  for j=n:-1:i+1  sol(i)=double(sol(i))-double(C(i,j)\*sol(j))  end  end  printf("Row reduced Echeon form is : \n")  disp(C)  printf("From Back Substitution: \n\n")      printf("The solution for the system of equation is: \n")  sol=[]  for i=n:-1:1  sol(i)=C(i,n+1)  for j=n:-1:i+1  sol(i)=double(sol(i))-double(C(i,j)\*sol(j))  end  end  for i=1:n  printf("X%d = %f\n",i,sol(i))  end  else  printf("The system of equations is inconsitent")  end |
| **Output:** |  |
| **RESULT:** Learnt how to convert into row echelon form in scilab using for loops  Learnt how to find If a given system of equation is consistent or not. | |