```
a to find the obtinate specific acting againty of clogic off fear
        tik - float(imputs teler the value of harateristics compressive strongth 1).
       far Almattinguts States the grade at stock-11
        a + Cost (Imput) ( inter the value of Codules at (Latticity of Steel, "1)
       to thest(input) Teter the patter of abits the
        to the At (input) leter the value of attactive Ageth "):
       neighborred; later the mater of turn 3)
       4411- (- 40 7654141141)
       ANTZ- John Pandrachasy
       person the value of weapt stool (Astt).", Astill
       printicate extends were of their (Astr) " astro
        # Total was of sterl
       Ast - Act 1 - Ast 2
       printi The value of sheet (Ass).", Ass) a bentral Asia factor
       bu - minutes in nors - certe is estable
       print? The same of soutral aspe factor (ket , bal.
       # Moreovers or Breathanks, target
       Aur. 0. 10.14 (h 1 m 1 1 2 - 10 . 42 6 6 7 2 . . . .
       print ("the value of Smoot & Agintage factor that ", But
       # Managem benefical Asia
(cell print(The wine of curious rentral mix (press) ", mean)
        to + 10 47*ty*Ast 1/40, 16*fr4*h)
       Print( The value of Actual Sentral Acts (6) (6)
                                                           MAN ROLLOND
          print(block withinson)
          PRINTERSON RETREBUIED OF A
       # by Comparing
       s . Chart toput ("letter the value of Moutral Arts."))
      # Powent of Jesistance
       print: "The value of Moneyt of Besistance Is.", May
        Fitter the value of the storistics compressive strongth 20
             inter the grade of steel 415
            Inter the value of Minimum of Clasticity of steel:2000000
Enter the value of Bodyn 210
           fater the value of ettaclice depth: 400
           i inter the value of har financer (dl):20
            Inter the value of har disselve (d2):16
           Inter the meter of hard
            The value of area of street (Aut 1: 628.72
           The value of area at stort (Astz) 402,1740
          The value of area of steel (Ast) 1000.0000
The value of truttal area factor (kg) 0.4771066666666665
             the value of therent of desistance factor (for) 2,7556.874973999999
             The water of marinus resteal arts (supar): 191.66846666699
            The value of Actual Newtral Acts (ed) 224 66310086956521
            OVER RETAILORCED
            Enter the value of Mentral Axis:191.060667
             The value of Moment of Resistance is: 101409300131927.98
       a Design of Slab
       # Given Data
       # iffective span is already given in question
       span- float(input('inter the value of effective span in meters:"))
     the floatsingual ("fater the value of whath of slab in me!"))
       bs. float(input("fetert the value of Support width in meters:"))
       tch - float(input(' inter the value of Characteristics Compressive Strength: '))
       (y + fleat(Deput("inter the value of grade of steel("))
       (5 . finalizepst("Inter the value of Modules of Clasticity 14:"))
     it . final(input("Enter the value of tive total "))
       if - float(Piput("inter the value of floor finish."))
       Density - float(Input("Enter the value of Density of RCC:"))
     # Design Constants
       * Neutral Axis factor
       $4 - 0.0075 , (*0.0055) * (fy / (1.15 * Es)))
       print("The value of Neutral Asia Factor (ku) isi", ku)
       a Mosent of Britistance Facor
       Eur. 0. 36-9/h****(1:(0.42*ku))
```

```
printilitie sale of Moment Assistment to for (Am) is ". Full
     Assumpting of M.S from Fig. 4 from 15 450 1807 page to 18
     As that imput "Ent or the calurent Street reess of Service " ))
     · for a solution for the the fration for a
     SE Test Depot Coter for value at Not till a factor: b)
     me a charge of the total about the fire
     5- Hostelepal States the extension aparent latter "11
     26 f tor reflect to 1 autors
    kindostriapit inter-the value of correction factor it was 100 (kin 1)
    kin finalization (interche value of tension of correction factor (kining)
    64. Continents Story the value of convertion factor in case of flanged section (64);")
    A lefective depth
    atte (spanetpoor / com eliter of the
    print("The value of effective depth is jee deflection reflects is!", d1) a Define (freetive depth and referal) depth Assertor value of cover d = floatilises) letter the value of (Freetive depth is == (d)="))
    Do final imput linter the value of Cogniti depth in ec (0) "))
    # toad falculations
    # Self weight of slab
    Di . D'Density 1000
    print("The feed load is ", DL)
   # fotal toad it.
    factor-float(input Enter the value of partial basety factor is: "))
   11 . Di . Li . ..
   print("The value of intal load is:", to)
   Mi-factor*ft
   print("me-"; me)
    A Berntlege Phonest Calculations (Pul
   Mare Sail span span W
   point; "The Value of benuing Moment (Mu) is ", Ma)
   # theck for effective depth
   d2- (Mu*180800 (#u*6))**0 %
   print("The value of iffective depth as per Mormont omitemia", d2)
   1# d2>d:
    print( Tirvise the Depth. ")
   d - float(input ('tater the value of Effective depth in mm (d) "))
  print("Minimum Steel Calculations")
   Astein - 0.12*6*0/100
   print("The value of Minimum steel 1:17, Astein)
  print("Main Steel calculations")
  Ast-((0.5*fc**h*d)/(fy))*(1-((1-(14-5*pu*1000000)/(fck*h*d*d)))*0.51)
  print("Ast;", Ast)
  print; "Check for Ast")
  if Astrastmin.
   print("lake Ast-Astmin")
  else.
   print("AstaAstmin, Hence SAFE")
  dial . float(input('Inter the value of har diameter for main steel-'));
 dia2 - float(input(" inter the value of har diameter for Eistribution steel:"))
 Marca of bar
 aut - 0.7854" diat" cial
 print("the Value of Area of wain steel bur (aut);", aut)
 and- 0 fac4" distroins
 print("The Value of Area of main steel bor (an2):", an2)
 # Sapring Calculations
 Smaring1 - acitb/Ast
 prints The sapeing for main steel bars is; ". 'making!)
 Spacings - polity Astain
 print("the saping for distribution steel bars is;", Spacing2)
 print('Check 1 for main steel')
 1f Spacing1>300
  printernoaffer
relse:
   print("Safe")
   print("Check a for main steel")
 if sparingly shall
  print("Unsation)
   print("SAFE")
   (rint("Check 1 for Distribution steel")
 if Specingly300:
  Ter Inter Tousanters
else:
  print("SAFE")
```

```
prints Triesh 2 for Distribution steel "
 or season; to 55d
   DELINET TOWARD )
( else
  granti "SAFE")
   print ("Approximated values of Sapring")
  $1-float(input) Enter the salue of sparing of mass fors "as
 special (topol "later the value of spacing of distribution has "Ti
 Softe evided-sol*6/51
 points "The provided steel were for main back at section to me"2 is ". Astpoortded)
 Sarpe milist eau2*6752
 printi The provided steel area for distribution bors at wester to well is ". Astprodist
  a thert for thear
 20 - (84*1920/2) (36*((65/2)-(4/1920)))
 print("The value of 51 at a Section In ", We)
 Siters: - (Wr'1000)/(5'd)
print("The value of shear stress is ", satress)
  # from table 20 15 45% (2007 page 21
 Streetseas - Coat (most inter the value of savious thear streets; )
of Stressisstrespine
   print( Trushing +11 Nappen")
i clar
   perint(PSAFES)
  shoreentage Steel
 pt =(100*Ast)/(6.50)*720
 print; inter the value of personage steel is ". pt;
 A from table 17 15 250 2007 page 74
 SSe float(teput("(eter the value of Steam States (se"))
  ke float(input) "(oter the value of depth $1100;");
 point("He value of shear at section is",
14 SSTERRSSSMEARS
                                                        ANK PROLONE
   print("Shear Neinforcement Negatired")
  - print("Shear Heinforcement not Required, SAFF")
 # Check for Deflection
 Actors - span'tnoo/d
print("The value od span/d is:", ActOff)
  a Actual Inflection
Marbit - 5*97*11*82*81*84
print("The precisable deflection is:", MaiD(f)
 of Marbitis, d:
   print("SAFE")
| else:
   printe "INSAFE"!
* Check for Anchbrage tength
 M1 = 0.87*fy"Ast"(d"([fy"Ast)/(fct*b)])
print("The value of Moment (MI)", MI)
lo - S'diel
 La = 1.3*(M1/Vo)+10
print("The value of Arctorage length is:", ta)
 a fevelopment Length
 bonds - troat(Input("Enter the value of fund Stress:"))
Ld = 0.87**, dia1/4*bonds*1.6
 print("the value of Development length is:", id)
 if lastd:
   mainti "SAFE")
  Total the value of effective span in meters:
      Inter the value of width of that in me: 1808
      Extert the value of Support which in meters in 24
       Inter the value of Characteristics Compressive Steength 20
     Inter the value of grade of stref 415
      Enter the value of Modulus of Flasticity 1s: 200000
     Inter the value of tive load 4
      Enter the value of floor Finish: 1.8
     Inter the value of Density of ACC.25
       The value of Neutral Axis Factor (ku) is: e.4791666666666667
      He value of Moment Resistearch factor (Ru) is: 2.75568749999979996
      Int on the value of Steel Stress of Service: 240
       inter the value of "odification factor:1.2
       Enter the value of span/d ratto:20
       leter the value of Correction tactor if saphy 10s (k1):1
       Inter the value of tension rit correction factor (k2):1
       enter the value of Compression rif correction factor (43):1
       Inter the value of correction factor in case of flanged section (k4):1
       The value of effective depth as per deflection criteria is: 125.0
       Enter the value of Effective depth in me (d):130
       Enter the value of Overall depth in am (D):150
```

The Dead Load 1st 1.75 Enter the value of portiol Safety factor is: 1.5 The value of total load is: 9.55 No. 14 325000000000001 The Value of Bending Moment (Mir) is: 16.115625 The value of Effective dopth as per Mornent centeria: 24.18291883998223 SAFE Enter the value of Effective depth in ** (d):130 Minimum Sterl Calculations Hw value of Minimus steel is: 180.8 Main Steel calculations Ast: 1909.7862604263207 Owek for Ast AstoAstmin, Hence SAFE Inter the value of har diameter for main steel: 10 Inter the value of bar diameter for Distribution steel:8 The Value of Area of main steel bar (201): 78.54 The Value of Area of main steel bar (202): 50.2656 The sapcing for main steel bars is: 41.12502006567998 The sapring for distribution steel bars is: 279.253333333333333 Geck 1 for main steel SAFE theck 2 for main sheet SAFE Check 1 fon Distribution stout SAFE Cleck 2 for Distribution Steel SAFE 'Approximated values of Sapting's Enter the value of spacing of wain back:210 Enter the value of spacing of distribution bars:270
The provided steel area for main bars at section in mar2 is: 374.0 Many Rock of the state of the s the provided steel area for distribution hars at section in mail is: 186,1688888888889 The value of SF at a Section is: 21.702375 The value of shear stress is: 0.16694134615384615 Enter the value of maximum Shear stress:2.8 CAFE