HE SEN dead do bhangantana a. Apply harming code concept on the binary dade and add DIE E de tertena, Est avice & Coulted Chantal Hold Marine Greate a Statestien program with below beating were comme 1. Receiver program should read Atta mont brom chance bile. Directly beamining Code on the Birchy date to check offer exists.

If there is an exist alistray, the position of the error

A position of the error

A plue namena the reductant bits and Convert the birchy data to would and display the · milosseen Output weath Sevelon program with remediant water lavored elife colored at keye Til Appell was so keep to ad all cours blooks morgorge

```
rogram:
def string-to-binary (input-string).
 return'i jour (format (ord(c), 1086))
for c in input-string)
def binary-to-String (binary-data):
    Chars = []
for i in range (o, len (birary-
  by te = binary-data plata ); 8);
     Chars. append (Chr (int (by+0,2)))
  return 11. join (chars)
det calculate-parity-bib (date):
    n=len(douta)
Mhile(2 * * 8) ~ (n+8+1);
     pourty - yell 1=1 hour pring
   return r
det insert-pourity-bits (data, 1);
      n=len (data)
      520
            no-tone trotals det
      ment
  hamming - Code = []
 for i in range (1, m+1)
     if i==2**j;
```

```
ramming_Code. append (0)
    1+x1 had and become the
              Small & Association into
else
     hamming_code. appoind (intidously)
     K+=1
 return hamming_cods.
def calculate-parity-values (hamming
   h= len (hamming-code = ) =
for in range (x):
 Parity-pos = 2 * *;
      Parity-val =0
for j in range (1, h+1):
    14 ; & parity_pos and 3 != parity
       Parity-val 1= hamming_code
 anning-code [parity-pos-1]: parity
  return hamming-cools.
dels detect_and-correct_error
               Chamming - cocle, r):
  n = len (hamming-code)
  error-position=0
                  adjoy at i ron
for I in range (x)!
     Parity-Pos = 2 **;
```

```
Parity_val=0
 for j in range (1,n+1):
     if je parity_pos:
         Parity_val 1: Lammitg_Cools
If parity - val 6=0: 2 - of paris
   error-position += pavity-pos
if error-position:
  prints f" Error detected at position.
                ferror-position?")
hamming_Code I over-position -1717=1
printf(f" Cosorected Hamming Lods:
               [hamming-code 3")
     (Yelsa) prknon
 else: print "No evror detected.")
return hamming-cools.
dets entract-data-from-hamming
              (hamming-code, );
    doita = EJ
for i in range (1, lon (hamming code)
                2 ( som print):
     if i!=2 ** [:
       data. appoind (hamming Locale [1'-1])
```

```
cloo: j+=1
return ". joil (map(stridata))
def mans ():
   input_ String = "jayashree"
binary-data= String_to-binary Cinput
Print(f" Bihary representation of
          fingut-string 31: { binary-data 31)
 7 - Calculate-parity bils (bitary-date)
hounning-Code = insent - parity - buts
                     (birary-data, r)
the winds ted
ramming-coole-Calculate-pairity-lakes
            (houmming-Cools, r)
Print [f" Hamming Coole with powity
            bits: framming-Cooley")
     ("In Introducing a Single-bit
        error for demonstration...")
While True:
    provabitaint linput (f"Enton the
  try
bit position(1-flen
( hamming-lode ) 3) to introduce or
                  ((": 1000s; "))
 14 Jan primment) lodonges such
```

it enror-pi+ + (enror-pi+-1)==0; rouse Value Error ("Error bit position Cannot be a power of 2. please enter a valid position. 11) ictail portunal " 4) tring break except Value Error as e: print(e) hamming-coole = Calculate_parity_ Values Chamming-Code, r) print (f"Hamming Code with possity bits: & hamming-Code &") print('In Introducing a sing le-bit error for demonstration...") While True togles borig" 4) tring try:
error-bit=intlinput (f" Enter the bit position (1- [len Chamming-(vode) 1/3) to introduce an error: "1) if ever-bit & (ever-bit-1)==0: raise Value Error ("Error bit Position Cannot be a power of a. Please enter a valid

position.")

break tid range) & hid many except Value Error as e; Print(e) hamming-Code Lerror-bit -17 n=1 Print Ct" Hamming Code with ever : f hamming-cools 3" amming-Code= detect-and-correy error(heumming_code, r) Corrected - binary - data = extract data-from hamming (hamming_coole, ~) Corrected String = bihary - to- String (corrected-binary-date) Print(f"Final output abter Correcting Hamming Cools: Corrected-String 3/11) hane- == " _ mars - ". mach () or sol & tid-rome Hid rover " I now I would selver TOSIHON COUNTY DO ON POLOGO ON bully so nother occasion.

(4.96 A1207

output: Binary representation of Jayashio 011010100110000101111001010100010

Error 1. Hemming Code with Pavity bits: [0,0,0,1,1,0,0,1,0,1,0,0,1,1,0,0,0, 0,0,1,0,1,1,1,1,0,0,1,0,1,0,1,0,0, 0,0,1,0,1,1,1,0,0,1,0,1,0,0,0,0,0 1,1,1,0,0,1,0,0,0,1,1,0,0,1,0, 1,0,1,0,0,1,0,1]

XEU 10110, 1010 1110,000

Introducing a single-bit evour for demonstration.

Enter the bit position (1-791) to introduce an envor:5

Erra 1

Hamming Code with error: [0,0,0, 0101110101110111011101110101010101010 10,1,1,1,1,0,0,1,0,1,0,1,0,0,0,0,1,0, 1,1,1,0,0,1,1,0,1,1,0,1,0,0,0,0,0,1,1, 1,0,0,1,0,0,0,1,1,0,0,1,0,1,0,1,0,1,0 0, 1,0,17 solinara pelluterossos

error detected at position.s

proceed Hamming Code: [0,0,0,0,1, 0,0,1,0,1,0,0,1,1,0,0,0,0,0,0,1,0,1 0,0,1,9,0,1,1,0,0,0,0,0,0,0,1,1,1,0,0 1,0,0,0,1,1,0,0,1,0,1,0,1,1,0,0,1,0,0 inal output after correcting Hamming Code: 'Jayashree 1011,0,1,0,1,0,10 00 00 11,0,1,0,0 0,0,0,0,1,0,1,0,0,1,1,1,0,1,0,1,0,0 0.1,0,0,1,1,0,0,0,1,0,0,1,1,1 E1,0,1,0,0,1,1,0,1 of ranco + 1d alpais a providental 0+ (PT=1) #0'H1209 Fld 24+ 15/13 THOOLING ON ENTURY WE Va 10,10,1,0,0,1,000 1,0,0,0,0,1,0,1,1,0,1,1,0,0,0,1,1 Result's on o Thus the program us Successfully executed and to looked to be recto verified.