```cpp
// Question_1.cpp : This file contains the 'main' function. Program execution begins and ends there.
//
//
// /
//--------------------------------------------------------------------------------------------
//Name                          Sai Chaitanya Kilambi
//Course                        CPSC 131 Data Structures, Fall, 2022
//Assignment                    No.5 question:1
//Due date                      09/28/2022
// Purpose:
// This program converts decimal number into binary,octal and hexadecimal
//--------------------------------------------------------------------------------------------
// list of libraries
//
//importing the required libraries

#include <iostream>
#include <string>
#include "STACKPAC.h"  // using the STACKPAC header file

int main()
{
    Stack<int, 60> s;  //creating the stack
    s.clearStack();    //clearing the stack
    char hex_digits[] = "0123456789ABCDEF";    //defining the numbers in hexadecimal system
    int n,a,temp;
    char flag = 'y';       //creating a flag
    while (flag != 'n')
    {
        //input prompt
        std::cout << "Enter a number at base 10: ";
        std::cin >> n;

        //input prompt to enter the base
        std::cout << "Enter a new base(2,8,16): ";
        std::cin >> a;
        temp = n;

        //for hexadecimal
        if (a == 16)
        {
            //computing the number in hexadecimal
            while (temp != 0)
            {
                int r = temp % a;
```

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45                  s.pushStack(r);
46                  temp = temp / a;
47              }
48
49              //output
50              std::cout << n << " base 10 ";
51              while (!s.emptyStack()) {
52                  int x = s.popStack();
53                  std::cout << hex_digits[x];   //converts to the hexadecimal ↵
                        numbers
54              }
55              std::cout << " base " << a << std::endl;
56
57              //input prompt for the flag
58              std::cout << "CONTINUE(y/n)? ";
59              std::cin >> flag;
60          }
61
62          //for binary and octal
63          else
64          {
65              //computing the number in binary and octal
66              while (temp != 0)
67              {
68                  int r = temp % a;
69                  s.pushStack(r);
70                  temp = temp / a;
71              }
72
73              //output
74              std::cout << n << " base 10 ";
75              while (!s.emptyStack()) {
76                  int x = s.popStack();
77                  std::cout << x;
78              }
79              std::cout << " base " << a << std::endl;
80
81              //input prompt for the flag
82              std::cout << "CONTINUE(y/n)? ";
83              std::cin >> flag;
84
85          }
86      }
87      return 0;
88
89  }
```