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**Section:** 2I

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# **Question 1**

Write a C++ program that accepts a SAP ID and an email address from the user. The email address must meet certain conditions based on whether the last digit of the SAP ID is even or odd.

* If the last digit is even or zero, the email must contain the "@" symbol and at least one dot (".") after the "@".
* If the last digit is odd, the email must contain the "@" symbol and should not have an underscore ("\_").

Implement two functions to check the validity of the email address based on the SAP ID condition. The program should display specific error messages for each condition that is not met and prompt the user to enter a valid email address. The program should repeat this process until a valid email address is entered.

# **Code**

#include <iostream>

#include <string.h>

#include <windows.h>

using namespace std;

bool isValidEmailEven(const char email[])

{

bool hasAtSymbol = false;

bool hasDotAfterAt = false;

for (int i = 0; email[i] != '\0'; i++)

{

if (email[i] == '@')

{

hasAtSymbol = true;

}

if (hasAtSymbol && email[i] == '.')

{

hasDotAfterAt = true;

}

}

return (hasAtSymbol && hasDotAfterAt);

}

bool isValidEmailOdd(const char email[])

{

bool hasAtSymbol = false;

bool hasUnderscore = false;

for (int i = 0; email[i] != '\0'; i++)

{

if (email[i] == '@')

{

hasAtSymbol = true;

}

if (email[i] == '\_')

{

hasUnderscore = true;

}

}

return (hasAtSymbol && !hasUnderscore);

}

int main()

{

system("Color FC");

char sapID[20];

char email[100];

while (true)

{

cout << "Enter your SAP ID: ";

cin >> sapID;

if (strlen(sapID) == 0)

{

cout << "SAP ID cannot be empty. Please try again." << endl;

continue;

}

char lastDigit = sapID[strlen(sapID) - 1];

cout << "Enter your email address: ";

cin >> email;

if (lastDigit == '0' || (lastDigit >= '2' && lastDigit <= '8' && lastDigit % 2 == 0))

{

if (!isValidEmailEven(email))

{

cout << "Invalid email! The email must contain '@' and at least one '.' after '@'." << endl;

continue;

}

}

else if (lastDigit >= '1' && lastDigit <= '9' && lastDigit % 2 != 0)

{

if (!isValidEmailOdd(email))

{

cout << "Invalid email! The email must contain '@' and should not have an underscore ('\_')." << endl;

continue;

}

}

else

{

cout << "Invalid SAP ID format. Please try again." << endl;

continue;

}

cout << "Email is valid. Thank you!" << endl;

break;

}

return 0;

}

# **Output**

