Source file:

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#include<cmath>

#include <iostream>

#include <string>

#include <iomanip>

#include <limits>

using namespace std;

//Main Fuction

int main(){

int menu( string name [], int items); // this intializes menu and calls if to a string

string menuOptions [] = {"Go to the park", "Walk the dog", "Get ice cream",

"Do homework", "Mow the lawn", "Wash my car", "Go on a date",

"Visit Grandma", "Clean the garage", "Watch TV"}; // Declare the elements and menu lists

int option = menu(menuOptions, 10); // this declares how much of iteams are in the menu

cout << "Option selected was: " << option << " : " <<

menuOptions[option] << endl;//this outputs the option sleceted and how many iteams in the list

string \* sArray;

sArray = menuOptions; //This is from sample code

cout << "Completed satisfactorily" << endl;

return 0; //this outputs that it compleated and returns zero

}

//Menu function

int menu(string item[], int nItems){

int width(int size);

int numDigits = width (nItems); // this calls the menu function and the width so it can line up in order

  for ( int index =0; index < nItems; index ++) { //This prints out the full mmenu before entering the choice

  cout << setfill ('0') << setw(numDigits) << index;

  cout << " " << item[index] << endl;// This displays the menu

  }

int choice;

cout << "Please enter menu selection --> ";

cin >> choice; // This tells the user to select an iteam from the menu to print out

while(cin.fail() || choice < 0 || choice >= nItems){

cin.clear();

cin.ignore(numeric\_limits<streamsize>::max(),'\n');

cout<< "Invalid value, must be >= 0" << "and < " << nItems <<endl;

cin >> choice; //This while loop basically keeps going until the user has inputed a right value which goes along the menu and if the user does not input something valid it keeps asking the user till they have entered a right value

}

return choice;

}

//Width function

int width (int size) {

int digits = (ceil(log10(size+1)));

cout << digits << endl;

return digits; //This function creates the width to have numbers beside the menu so it can line up in order

}//

Output: 2

00 Go to the park

01 Walk the dog

02 Get ice cream

03 Do homework

04 Mow the lawn

05 Wash my car

06 Go on a date

07 Visit Grandma

08 Clean the garage

09 Watch TV

Please enter menu selection --> yeet

Invalid value, must be >= 0and < 10

3

Option selected was: 3 : Do homework

Completed satisfactorily