**Студент: Моисеенков И. П.**

**Группа: М8О-208Б-19**

**Номер по списку: 21**

**Тема: Знакомство с языком МИКРОЛИСП.**

**Отображение программ из МИКРОЛИСПа в С++.**

**Лабораторная работа N3**

**Распечатка файла coin21.ss**

**; coin21.ss**

**(define VARIANT 21)**

**(define LAST-DIGIT-OF-GROUP-NUMBER 8)**

**(define KINDS-OF-COINS 5)**

**(define (first-denomination kinds-of-coins)**

**(cond((= kinds-of-coins 1) 1)**

**((= kinds-of-coins 2) 3)**

**((= kinds-of-coins 3) 10)**

**((= kinds-of-coins 4) 20)**

**((= kinds-of-coins 5) 50)**

**(else 0)**

**)**

**)**

**(define (count-change amount)**

**(display "\_\_\_\_\_\_\n amount: ")**

**(display amount)**

**(newline)**

**(display "KINDS-OF-COINS: ")**

**(display KINDS-OF-COINS)**

**(newline)**

**(let(**

**(largest-coin (first-denomination KINDS-OF-COINS))**

**)**

**(display "largest-coin: ")**

**(display largest-coin)**

**(newline)**

**(cond((and (> amount 0)(> KINDS-OF-COINS 0)(> largest-coin 0))**

**(display "List of coin denominations: ")**

**(denomination-list KINDS-OF-COINS)**

**(display "count-change= ")**

**(cc amount KINDS-OF-COINS)**

**)**

**(else (display "Improper parameter value!\ncount-change= ") -1)**

**)**

**)**

**)**

**(define (pier? x? y?)**

**(not (or x? y?))**

**)**

**(define (cc amount kinds-of-coins)**

**(cond((= amount 0) 1)**

**((pier? (< amount 0)(= kinds-of-coins 0))**

**(+ (cc amount (- kinds-of-coins 1))**

**(cc (- amount (first-denomination kinds-of-coins)) kinds-of-coins))**

**)**

**(else 0)**

**)**

**)**

**(define (denomination-list kinds-of-coins)**

**(cond((= kinds-of-coins 0) (newline) 0)**

**(else (display (first-denomination kinds-of-coins))**

**(display " ")**

**(denomination-list (- kinds-of-coins 1))**

**)**

**)**

**)**

**(define (GR-AMOUNT)**

**(remainder (+ (\* 100 LAST-DIGIT-OF-GROUP-NUMBER) VARIANT) 231)**

**)**

**(display "Variant ")**

**(display VARIANT)**

**(newline)**

**(newline)**

**(display (count-change 100)) (newline)**

**(display (count-change(GR-AMOUNT))) (newline)**

**(set! KINDS-OF-COINS 13)**

**(display (count-change 100)) (newline)**

**(display "(c) Moiseenkov I.P. 2021\n")**

**Распечатка файла coin21.cpp**

**//coin21.cpp**

**#include "mlisp.h"**

**extern double VARIANT;**

**extern double LAST\_\_DIGIT\_\_OF\_\_GROUP\_\_NUMBER;**

**extern double KINDS\_\_OF\_\_COINS;**

**double first\_\_denomination(double kinds\_\_of\_\_coins);**

**double count\_\_change(double amount);**

**bool pier\_Q(bool x\_Q, bool y\_Q);**

**double cc(double amount, double kinds\_\_of\_\_coins);**

**double denomination\_\_list(double kinds\_\_of\_\_coins);**

**double GR\_\_AMOUNT();**

**// вариант - номер в списке группы**

**double VARIANT=21.;**

**// последняя цифра номера группы**

**double LAST\_\_DIGIT\_\_OF\_\_GROUP\_\_NUMBER=8.;**

**//количество имеющихся номинмалов монет**

**double KINDS\_\_OF\_\_COINS=5.;**

**double first\_\_denomination(double kinds\_\_of\_\_coins){**

**return**

**( kinds\_\_of\_\_coins == 1. ? 1.**

**: kinds\_\_of\_\_coins == 2. ? 3.**

**: kinds\_\_of\_\_coins == 3. ? 10.**

**: kinds\_\_of\_\_coins == 4. ? 20.**

**: kinds\_\_of\_\_coins == 5. ? 50.**

**: 0.**

**);**

**}**

**double count\_\_change(double amount){**

**display( "\_\_\_\_\_\_\n amount: ");**

**display( amount);**

**newline();**

**display( "KINDS-OF-COINS: ");**

**display( KINDS\_\_OF\_\_COINS);**

**newline();**

**{**

**double largest\_\_coin (first\_\_denomination( KINDS\_\_OF\_\_COINS));**

**display( "largest-coin: ");**

**display( largest\_\_coin);**

**newline();**

**return**

**( amount > 0. &&**

**KINDS\_\_OF\_\_COINS > 0. &&**

**largest\_\_coin > 0. ?**

**( display( "List of coin denominations: "),**

**denomination\_\_list( KINDS\_\_OF\_\_COINS),**

**display( "count-change= "),**

**cc(amount, KINDS\_\_OF\_\_COINS)**

**)**

**: (display("Improper parameter value!\ncount-change= "), -1.)**

**);**

**}**

**}**

**bool pier\_Q(bool x\_Q, bool y\_Q){**

**// стрелка Пирса**

**return !(x\_Q || y\_Q);**

**}**

**double cc(double amount, double kinds\_\_of\_\_coins){**

**return**

**( amount == 0. ? 1.**

**: pier\_Q(amount < 0., kinds\_\_of\_\_coins == 0.) ?**

**cc(amount, kinds\_\_of\_\_coins - 1.) +**

**cc(amount - first\_\_denomination(kinds\_\_of\_\_coins),**

**kinds\_\_of\_\_coins)**

**: 0.**

**);**

**}**

**double denomination\_\_list(double kinds\_\_of\_\_coins){**

**return ( kinds\_\_of\_\_coins== 0 ? (newline() , 0.)**

**: (display(first\_\_denomination(kinds\_\_of\_\_coins)),**

**display(" "),**

**denomination\_\_list(kinds\_\_of\_\_coins - 1.)**

**)**

**);**

**}**

**double GR\_\_AMOUNT(){**

**return**

**remainder(100. \* LAST\_\_DIGIT\_\_OF\_\_GROUP\_\_NUMBER + VARIANT,**

**231);**

**}**

**int main(){**

**display ("Variant ");**

**display (VARIANT);**

**newline();**

**newline();**

**display (count\_\_change(100.) ); newline();**

**display (count\_\_change(GR\_\_AMOUNT()) ); newline();**

**KINDS\_\_OF\_\_COINS=13.;**

**display (count\_\_change(100.) ); newline();**

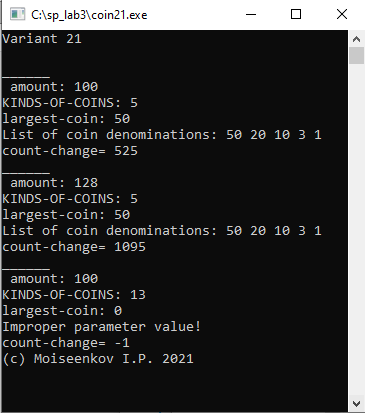
**display ("(c) Moiseenkov I.P. 2021\n");**

**std::cin.get();**

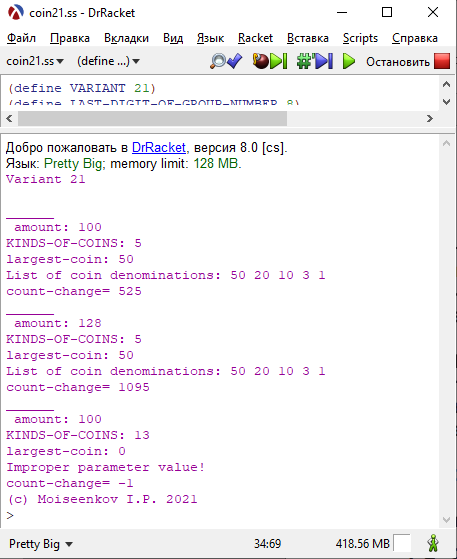
**return 0;**

**}**

**Скриншот запуска в C++.**

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**Скриншот запуска в DrRacket.**

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