**Eтап 4 . Лістинг коду**

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Lab 7 . Ada Rendezvous

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--A = a\*B + max(E)\*T\*(MK\*MR)

--22.04.2016

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with Ada.TEXT\_IO; use Ada.TEXT\_IO;

with Ada.INTEGER\_TEXT\_IO; use Ada.INTEGER\_TEXT\_IO;

with Ada.Calendar; use Ada.Calendar;

with Ada.float\_text\_io; use Ada.float\_text\_io;

procedure lab7 is

N: Integer := 4;

R: integer := 2;

P: Integer := 2\*\*R;

H: Integer := N / P;

type Vector is array(Integer range<>) of Integer;

type Matrix is array(Integer range<>) of Vector(1..N);

procedure inputVector(V : out Vector) is

begin

for i in 1..N loop

V(i) := 1;

end loop;

end inputVector;

procedure outputVector(V : in Vector) is

begin

for i in 1..N loop

Ada.Integer\_Text\_IO.Put ( V(i) );

end loop;

end outputVector;

procedure inputMatrix(M : out Matrix) is

begin

for i in 1..N loop

inputVector(M(i));

end loop;

end inputMatrix;

function max2(x, y : in Integer) return Integer is

begin

if(x > y) then

return y;

end if;

return x;

end min2;

function maxH(M : Vector) return Integer is

buffer : Integer;

begin

buffer := M(1);

for i in 1..H loop

if(M(i) > buffer) then

buffer := M(i);

end if;

end loop;

return buffer;

end minH;

procedure calculating(A : out Vector; alpha, m :in Integer; MO,MK: in Matrix; T1,B : in Vector) is

buf : Integer := 0;

begin

for i in 1..N loop

for j in 1..H loop

buf := 0;

for k in 1..N loop

buf := buf + MK(k)(i) \* MO(j)(k);

end loop;

A(j):= alpha\*MO(j)(i)+m\*buf\*T1(j);

end loop;

end loop;

end calculating;

task type Tsk (id: Integer) is

entry Data(E:in Vector; MR: in Matrix; idp : in Integer);

entry Data5(B:in Vector; MO: in Matrix; idp : in Integer);

entry DataN(T1,B: in Vector;MO : in Matrix; alpha : Integer);

entry ResultMj(m : in Integer);

entry ResultM(m: in Integer);

entry ResultA(A : in Vector; idp : in Integer);

end Tsk;

type PTask1 is access Tsk;

T: array (1..P) of PTask1;

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task body Tsk is

MRi: Matrix( 1..(P+1-id)\*H );

MKi: Matrix(1..N);

MOi: Matrix(1..id\*H);

Ti:Vector(1..N);

Bi:Vector(1..N);

Ai,Ei, bufA : Vector(1..(P+1-id)\*H);

index,index5, buf : Integer := 0;

alphai, mi: Integer;

begin

delay 1.5;

Put\_Line("Task is started!");

if id = 1 then

inputVector(Ti);

end if;

if id = 5 then

inputVector(Ei);

inputMatrix(MKi);

alphai := 1;

end if;

if id = P then

inputMatrix(MOi);

inputVector(Bi);

end if;

if (id != 1) then

accept Data(T1:in Vector; idp : in Integer) do

Ti := T1(((id - idp)\*H + 1)..(P+1-idp)\*H);

end Data;

end if;

while (id + 2\*\*index <= P) loop

if (2\*\*index >= id) then

T(id + 2\*\*index).Data(T1,id);

end if;

index := index+1;

end loop;

if (id != 5) then

accept Data5(B:in Vector; MO: in Matrix; idp : in Integer) do

Bi := B(((id - idp)\*H + 1)..(P+1-idp)\*H);

MOi := MO(((id - idp)\*H + 1)..(P+1-idp)\*H);

end Data5;

end if;

while (id + 2\*\*index5 <= P) loop

if (2\*\*index5 >= id) then

T(id + 2\*\*index5).Data5(Bi, MOi,id);

end if;

index55 := index+1;

end loop;

if(id != P) then

accept DataN(E: in Vector;MK: in Matrix; alpha : Integer) do

MKi := MK(1..id\*H);

Ei:= E;

alphai := alpha;

end DataN;

end if;

index := 0;

buf:= P+1-id;

while(buf + 2\*\*index <= P) loop

if (2\*\*index >= buf) then

T(P+1-(buf + 2\*\*index)).DataN(Ei,MKi, alphai);

end if;

index := index + 1;

end loop;

mi := maxH(Ai(1..H));

Ada.Integer\_Text\_IO.Put ( mi );

if (id < P) then

accept ResultMj(m : in Integer) do

mi := max2(mi, m);

end ResultMj;

end if;

index := 0;

buf:= P+1-id;

while (buf + 2\*\*index <= P) loop

if (2\*\*index >= buf) then

T(P+1-(buf + 2\*\*index)).ResultMj(mi);

end if;

index := index+1;

end loop;

if (id > 1) then

accept ResultM(m: in Integer) do

mi := m;

end ResultM;

end if;

index := 0;

while (id + 2\*\*index <= P) loop

if (2\*\*index >= id) then

T(id + 2\*\*index).ResultM(mi);

end if;

index := index+1;

end loop;

calculating(bufA, alphai, mi, MOi, MKi(1..H), Ti,Bi);

Ai( (id-1)\*H+1..id\*H) := bufA(1..H);

index:= 0;

while(2\*\*index < id) loop

index := index+1;

end loop;

while((2\*\*index+id) <= P) loop

accept ResultA(A : in Vector; idp: in Integer) do

Ai(((idp-1)\*H+1)..idp\*H) := A(((idp-1)\*H+1)..idp\*H);

buf := 0;

while(2\*\*buf < P) loop

if (2\*\*buf >= idp) then

Ai(((idp + 2\*\*buf-1)\*H+1)..(idp + 2\*\*buf)\*H) := A(((idp + 2\*\*buf-1)\*H+1)..(idp + 2\*\*buf)\*H);

end if;

buf := buf+1;

end loop;

end ResultA;

index := index+1;

end loop;

if (id > 1) then

buf:= 0;

while(2\*\*buf < id) loop

buf := buf+1;

end loop;

buf := buf - 1;

buf := id - 2\*\*buf;

T(buf).ResultA(Ai, id);

end if;

if (id=1) then

outputVector(Ai);

end if;

Put\_Line("Task is finished!");

end Tsk;

task T0;

task body T0 is

begin

for i in 1..P loop

T(i) := new Tsk(i);

end loop;

end T0;

begin

NULL;

end lab7;