.

*SPC*

*question*

*pap*er

*De*c

2*018*

UANSACTS

ya

al

system software consists of a variety of programs that supports the operation of a computer System Software or system program is a computer program that provides the infrastructure over which programs I can operate: This software makes it possible for the

users to focus on an application or el other problem to be solved, without needing to know the details of howt machine works o internally. syston software is the combination of the following

Device Drivers operating system Otilities

- Win*do*w ihre Wen*dowi*n***g***

Sus*ten* an **4yen\_**

Servers

1. Application software is any tool that functions and is operated by means of a computer and allow end users to accomplish one or more specific lask Typically application Software includes: Industrial automation Business Software Database media player

*Tuser*)

Application)

A*pp*lica*ti*on

L Hardware

**Sundaram)**

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b)

Features

of

macro

are

*!*

*S*i*mple Ma*cro*p*rocessor *In* a s*imple* macyout p*roce*ssor each ma*cro proce*ssor is exponded with its code as shown belown.

*Il Mac*r*o def*i*ned*

*Expanded* Source *M*AC*R*O *TES*T

Dupon*t LFL 2 2 T* Ful t on Al;*FI* A lflatautsan l STI, SWAP ST I, SWAP potovary

*MEND*

-

Y TEST

*> TESTI*RE

AL FI *S TI* SWA*P:*

Bolt

*T*ESTI

it lobo

ja inilagay

ols

u n

istine

*2)* Paramet*erised Macro ! Positional M*ac*r*o

A parameterized macro is not able to modify the instruction that replaces the call. To solve this problem We use maço calls within argument, parameters corresponding to

to these dummy argument which appear in macro

definition

Macro INCR 1 8 ARG

*А', SAR* MEND

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I MACRO Calls within Macros / Nested macro

In this feature of macro facility when one I MACRO exponsion is taking place we can

encounter another macro call or during one macro call another macro call is invoked.

MACRO

*M*A*CRO* e Exe*mple I* - Exem*ple* 29

- Nested call to

*Example* MEND

Example 1 Macro cause execution

or Example 1 MEND

T

ws

-

-

**bonustebins Reser*se G***

4

***a****arderarm2171797*

*PIE*TERRIT

conditional MACRO Most macro processor con modify the sequence of I statements generated from a nacro expansion

depending on the argument supplied in the macro expansion ALF and aro are two conditional macro I exponsion pseudo code which permit conditional

selection of the sequence of the machine instuudio that appear in expansion of macro call.

Macro Vary 8 count 8 AI, SA2, 8 A3 Alt I scomb EQi). Find

A2, 8Az AIFC Scout Earl. FINLI Az *8A3* I FINI MEND

3 d, da, da

*reri*

t

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**TUBE**

*16)*

bekkur *Interpreter*

level language into *for*m

in the high

intermediate line by tine o 2) Interpreters are slow in comparison to compiler 3) less compact than compiler.

4) Interpreted code is good for simple applications s) The advantage of line by line intrepretation is that s it con interrupt in between can change the code :

l and start against 6.1 The disadvantage is that every line has to be translated

every time of is executed. *7) Example of interprete*rs ar*e JAVASCRPIT, LISP, BASIC*

*v*agyi*m*

*comp*i*l*ere ilan sa in 1. It compiles the whole program at one time directly invinto machine language to 2 Compiled programs yon faster than interpreted 30 *more compactin*g withilia ha youl compiled code is good for complex application s. Translation of the whole program is an done at a one

time resulting in faster execution of program 6. The disadvantages are that we cannot change the p

without going back to the original source code 7. Cc+, C#, ey then

ari

*OT*O Y

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Java compiler

Javac complies Java program |SY*N*O*PSI*S

Javac *[option. I fileocme*.java

javaca Coptions, filename.java 1 The javac command compiles Java source code into a

Java bytecodes you then use the Java interpoter - the jove *command - to joterplet*e the Java *bytecodes.*

For every class defined in each source file compiled by fjavac, the compiler stoves the resulting byte codes in

La class file with a name of the foron set the property javac.pipe output to true to send

Output message to system.out. Set javac.pipe output to false that is, do not set it, to send outant message

randpa

G

source code

javac.

bytecode

*fogtecode*

JUM IMSL

I intel/ windows Pol

.

*H*av*a*

compileul

& Jum

1 SPARC

i Hommitale

i

B *o thar architecture* su*pporting uym*s one stoplication binary ship

J*LT Compile proce*ses when the JIT compiler environment variable is on the LJUM reads the class file for interpretation and pares

it to Jit. compiler. The JIT compiler the compiles I the bytecode into native rode for the Platform

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2 Q2 al 1. Macio Name Table LM NT): it is used macro nome 2. Macro Definition : it is used to store the entire macro

de finition 3. Auxiliary information is added to the MNT it indi

cates where the definition of macro can be found in

MOT. *la)*

*MDT* Stjepa - *(1)* s*tov*es *ma*cro *definition including* macro *prototype*

an*d bod*y and so 162*1 C*omm*ent lin*es are *omitted an*d I (B1 Reference to the macro instruction parameters are

converted to a positional notation for efficiency in

Subst*ituting ayqumarb*

→

It store macro names, which serves a DEFTAB contain pointers to the beginning

of the definition -

index to

and end

tirti

(c) →

of

CALA used during the when a macro

the arguments to thirr positio

expansion

invocation are store n the

macro invocation

statement is encountered in the table accorda argument list.

For

SPA

LLISILLE

IMOBILU

SUICIO

V*a*Rate C

CURSURORUNMALINA

UYATAUSSTE*GN*OSISI*E*RELEASINI

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WER

*Macro INCR*S*A*R*OL SARQ2, S*0*8923*

*ALSAROL*L 120*822* A3 *SAR*3

*MENO*

on Macro

Nome

Table (MNT)

Index

Macro Nome

INCR

MOT value

*1*5

Macro

definition

table

LMO TL

index

Definition

SA

INCR SAL, SA2 *AL\_EL* A 2 # 2

A 3 # 3 *ME*N*D*

*ALA*

Pyrene

index

A*rgume*n*tos* dical d 2 (A2) J 3.0 AS

11

UNIT

--

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Bundaran)

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C*OR*OLLA

26. The code optimization in the synthesis phase is a

progian transformation technique, which tries to improve the intermediate code by making it consume fewer resource Cie CPU memory) code optimization is lone in the following different ways 4 compile Time Evaluation

*cil* A = 2*\* ( 22.017.0)\**

perform 2 122.017.0) at compile time

*GTX = 12-4* ORE

gl*o x/2.3*

Evalute x12.3

as 12.412-3

at

compile

time.

2

variable 11 Before optimization

c = a*x*b x = a 13

3

"

d = x*x b + 4.*

After optimization e = arb

SA

d = *a\* b +4* Hence, after variable propagation, arb and x\*b will be identified as common shub-expressian baw

leads

3 Dead code elimination & Variable propagation

often to making assignment statement into deodrade *Bef*ore *c* = a*x b it*

2 after

c = ax 6. x = a

d = axbtu axbtu

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**2**

code motion :

• Reduce the evalution frequency

• Bring loop invariant statements

a = 200

; while Casol

of out

express lon

of loop.

. *A* = *x + 4* , .

if cats or

\_print ("%d" at above cole can be a = 200; b = xtyi I while cato

l a

further optimized at

if Carobod and printf("%d"

5

Induction Variable and strengoh Reduction s L. An induction variable is used in loop for the

following kind of assignment i=i+ constant in

• strength reduction means replacing the high strength

operator by the low strength a K*137*

*ll Aftey Use*d*uctio*n n while (icio) il tey.

while e teuol

y = ti t = t + 4.

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*Q*3

*Flow*ch*art*

of

Pass

2 *assembler*

Read )

I

stort

found

**EN*O***

Tupe

search in Pot

Inot

I found | Search in MOTI

*:*

**1**

Convert and | olp constant

*het i*n*struction Senathl*

Get

t

instruction length

nary rode

/ Determine len

of database

Evaluate operand *expressions by Sea*rchin*g fordvo*u*d* of symbols

I Indicate

available Base RealBT)

Indicate unavailable Base Reg

le

T

Assemble together f update I the parts of the

instruction del Pass 2 a It generate object code into the appropiate format for 1 loter processing by the looder I ) location Comter is initialized F 2) Sta*tem*ent is read from the *copy file create bypass /*

4142*4*3

3 23

SA

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3) opcode is checked to find whether it is pseudo

Copcode or not to locate the match for source

statements if the entry found in MOT is I matched then, the mot entry gives the length

of the instructia a LRR - form*at*iestruction el It decotes *register* to register *operation*

. Each of the RR have f- bit opcode and two a

4-*bit* g*eneral i vegister* sal blll Rx - *Register and lodexed stora*ge Opera*t*ion 1

. Rx - format -

storage operandia

o

top IRIX2 I Be I Det un

o g*eando* el abandonato

lis

R. S Register and storage operation

• This is a five-byte instruction of the form

OP Ri, Rol O2, Bl. The first bube contains I the 8-bit rostruction codé l o

The second byte contains two 4-bit field each Call of which en*codes* hail re*ais te*v son uns be

*51:4 st*or*ag*e *and mediate o*p*eration* a t

to

Time

in

To*pli 121 BLADZlo*t!

2nd *Immediale storag*e i operandss operands

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el ss - storage and storage operation

op / L / BILDIL B2 / 02

Length

a

*string operand*o

mtiriri

1 1 The fundamental task of a loader to

• Brin*g* an o*bject programs int*o nerem O m*emory*

*storet it's e*xe*cuti*on 1 2 To execute a program a loader performs four function

Allocation. It is used to allocate space in memory

for the object programs

• *Linking: It co*mbines two or more s*eparate preg*rann

and resolve symbolic references between object decks

Relocation : It modifies the object program so that intit can be loaded at an different addrew

. Loading: Physically it places the machine instruction

and data into the memory for the execution a *Liokey* i

s

1 . *load*ers

• A linker combines file generated oloader loads machine codes

by compiler into a single executate into system memory linker is a part of library files loloader is a part of an operating sys olioker perform the linking operation loader loads the program for exertion . It also links the user defined loading a program involves reading functions to the user defined the contents of executable file

libraries

r irir

into

memory

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1) P*ag*o N*o*

12. Dato:

E Batch -C

*SPCC Qu*ution Pa*per*

Spec- MU-2018 (4)(a*) A gramm*e whare*, panings Ja*bl*o how* no *multiple*

entrit is said to be 22 (1) grammer? Consid*ering the grammer*? -

*dij*iondoa

TAAS & ASB

B » Si

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6 *bilfunt\_typy of intermediater c*o*de rebuuntatione ar*e? -

W Sintaa tree! It is an example of very high-land

Intumediate presentations. As pare tree contains all the internation about the program that can be build the come code. A sentax tree u a graph, ebruature. *No*du in *eintake the correspond* to S*ta*remo*nti. Sedges* in *tun*te*a t*r*ee r*eb*res*ent *re*lations be*tween*

etatement. (2) Dirated farlie traph (DAG): - It is und to share the

comion subtred of a given expresion. DAG is wid to rebuut more than one path from start symbol

to tumnals - DAG is a collention of vutly *a*n*d p*athen d*ereitid edge*s. E*a*ck ed*g*e c*o*m*aiting one wants to* an*oth*er, an*d that the*re is no *v* way to start weites y and follow a sequeme of edges, that eventually loops book to v

*اولين و*

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Page No

*Genial For*est

*focom.*

(3) Three - addriu Code - In this each statement

generally contains three & addre , turo for the oluaral and one for the reall. That i way it i termed as three addreu code. It is a bobular from it intumediale cose und in optimising compiley! It is a segume of stalmente haning

O *a z bop.cz* Where of ý any operator lite t, - k stwand a,b and é an be narably contante on the

*emanary kanably generated by t*he co*m*biler. *Wa*hl can say that three to coldrey codu il branged refruentation of a a synter tree. eg! x+5 y" might be hambatid at -

6l = 2ks

222 tly 1 (u) Quadruple. It is a read structure having four

fuld *au Parleu*r ?

*Lof*otos I Spear*d It Alust*ard 2Remet. I lethou obrand! and of and 2 are tau ofrands for tho operate and result field contains the cruitle of the

*opera*tion on *Oberseilio L*and *0531*and2 g! ar 2 btc will be reprevated at

thea.

-

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Page No.

(Neelgargan]

Date:

(3) tuhy Tribly !- *a reward strau*t*we having*

three fille fields as folloud

*Operator I spen*d 1 ) *Bb and 2* To ausid entering temporary namy inte the symbol table, we might refer to a kmporary value by the kaution of the statement that company Computer it.

If we do so the ende three addrey code can be recruitol with only three hildi ouatore are either points to the sumbed table a pantor into the truph struturo gl refus to the exibel table for will defined namy oe constante and to the triple ituntia for temporary valus

The triple AB repreide the infis notation \*ABA 15) les The different. J*y bay of g*a*r*ba*g*e collection an*d*

*. c*ompation in combil*i*s ad?

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**ORDI**

**ubelp**

**ei**

$I*D) TebDasun Parsing Bottom Welkening*

*\* A baring stratigy theit las*kes A *barning strategen that looks*

fuit at hidhul inel ol but at loweet Genel ick the

the kane tree and worker pause tro and mocks up the down the bare true be bare tre by wing the using tree sulu of grlanma sulu of grammer!

Altemple to find left mat • Altempts to reduce the inbut drinations for an input strings to start symbol of *stuing*

a *Hammer*

. We stail benring from top . We stout parting from Town

letant eynbee to down leat nodo) to fob ( start ( Isaf node) in top-down symbol) in bottom up manner

*marok*

*• Uw lift* mor*t d*erivatión o *We*st Ri*gh*t mo*et doc*iation

• Masin dession is to selet a main dinion is to celut cubento! - sebat prodution rule to we wea modution rule to

in ode to construit the reduce the eting the get the *stevig*

*standin*g s*ymbol*e *- - Rojining descent, basee.*

n*eovisnin*e*, dexont purser a Hob d*own to metho*d of synta*x *amabait which is a c*o*lleti*on*' of selu*rui*ne broddieses*

to brows the inkut. A *procedure* is a*nociated wit*h *eac*her non-*terminal of the quasimene*

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*o in gcourse devenit banking*

- We trackbaid for this puodelian suupes sha choice

of pupelantion rulo dois not work ! - Pt tuis to find the left sil devinations

and it is a general parsing technique bed not

*cuddly unoh ?*

*• Reunio, dunent konge i ald-down banna beült from a set of mutually sk ssimo fondures where*

each sund broredung wually simplemente one of

*the produitio*n, J*ules of th*e *gammo*n. Lo E*xamples Comunale the grassanes* es!

Couson espusion of four / bum

Tem & toilm ofl farta I fouton Fausto exhusias / number?

op st

opl- & B*rosedus faut*e

begin

care taken Crotch )

*Dupremo* malih *wurdonmalih (umb*u): elu luar

end case *proudune matih (sepertid t*oken);

end

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Date

boom

*fode*n *veedavatud* tribun then

Euroc end of

6.) Billent share *of com*bi*lu* are!

(1) Leical Analyuch a odly brillum a lemegd. an*alysis* on

Seaming and works as intilove between loune *k*ropluk aanok S*y*nton*a Arere* anal*yse*

*e Lule*murul *t*he l*exu*al conu*to wr*i*te* in *a* co*unce* steny*, hy seal*ing the *stream of ch*ara*cter*s *fro*m

Q*yt*e *t*o Jejl*uk a*hl *giousbiy f*ilem in*to t*e bound (2) Synty Analyes -

- Ilio k*avoiden av h*y*drane*hal *on kogung an*alyy . *- A1 dilumuin lo steutiques of* sou*rce strony by doubang*

*ikke halam*and into recital colloeticiy *wit*h *the* same mocnwil

- *Tho c*el*ku*t *of cyntuk area*ll*y*u il abitaal\_synlex.be *(3*) Soman*ti d*r*ol*eil

- Du un*d to Mucabu. the m*eanin*g o*f *the c*ouvre - It dituming the meanin*g of the couro etusig a*nd .enl*e* Hat the con*de*br*uit* of *a programı fit*

*Pagalde moa*ning *fully* - S*isterities a*na*lyut Meu p*oema u*the tube c*hubing

a*nd objecte Vae*n*lary Clint*ury o*f variable arah* funu*li*ona hamu.. *to thail. dylinetisme I*

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fue bofyN*/*

10 Intimuito code barution

- *All*t semantic an*d enemy analyu, como comalu*

*qurtute* an *explicit vitiumdiate ripuntatio*n of the

Pa*lille h*oolam. *- Il* chand hav*e the*me *im*baitant

should be lay to produo and day to translate

into the terect hugram . - Interm*ediate co*de litr sabunbed*ú tim called*

" thice -aduy *cod*e

seach Pleidomenik het go*rcial fum*'s *zzroby.* Khiv/t) Code. Olti*meiratio*n!

- Altwitte *i*m*b*ri*na Hile is*t*emediale code a*

*ai*he late *u*ming m*ohini end*e, - *C*od*e betimizati*on *will* w*inou bloque* el

*comm*on *i*n *Hem*and g*u*nm*ati dunia* zi*dunder, les cod*e, sh*o*ult lin*e inde,* q*uod*

*mem*b*ut alueelle an*d *look a*t *so*bt*inizatio*n! *- (3) (8) Code Generati*on !

*e*t it a *brawl* in which *a code* gen*e*rata coniut*!* some itunel Ho*b*unntat*i*on of lot*us code into a* maudine coole Hat ko can be readily executed by a mailine. *- The culbut oka\_code grenatu, buruda be a melinda*

*co*d*e, duinely code and inde fui an abitant* mulin lik JVM).

-

*Symbol Table Ma*na*c*ement's - A symbed table is and by a language tram later such as a combilu a intuplitu whee, each *identiteti*n *bl*o*gram*s*egund code i*s *enoua*ted

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Date

and

I

were

loggiage filoska\_miller

o*mel*

*witke* in*formati*on I*celati*n*g to site dedorati*ons on a*bbensame* in the same, such as tyle, seske lewd, and sometion

ite l*ocatio*n*. (8) Eyrrae* sotation and Re*porting*

*- Programs are wr*itten *I ber brogramme*y *and*

hence camot be free from elroy. -& fexical analyser dilute all erroy when the s*zomousing Cheratit un the inpu*t *do not form any*

token . - Syntex analyzu urually detecte a large number of

*whos where the t*ob*en ettans* v*iolate* th*e stuutiwal rules of the languages*

- lemanlus analizu detate mismatch erroy. 6. (b) i Synthesioned Inherited attinutu.

Synthriget nathe bute is synthesized s ut valio at a

*bett*ent n *be*r*e*nta moglo. can be dete*rmined f*rom

atteitete*r of ite\_*children. \* *I*n *general, quien a clean pr*o*dulia*n r*ul*e, o*k*

the soem Ara Bg, then an asociated Comantic rule of the houm ut atta

*"A-attri*bute *en la* attrib*ui*te, B.attibute, gathebula *i s*ad *to splity a espnthe seed* " bal*t*ubule Synt*h*e.s*ij*odi a*t*tributes of the node is def*i*ned in terms

\* Altribuite, va*lu*e at childr*e*n o*f t*he mode

- Attribute value at node atuty.

-

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- Inherited a don attribalo s saboretisch. Al the ot*hekeplo*, yalng off

*La popo Je*ro m*adlo a d*ol*umns Pom olbikeste*

volun. *slp faso*nt *ord ellerige* 1 En gener*al, quini's a Capa parduolio sude ol dhe form*

*A9Bg"?Mton ann ausjohd, comitis sieloofso. Journal \*Brattributo a flo-otki bub, t. oflibush . : álló*bul*o. )" - said to listy an inho*al*s. athibolo Of B* Bilii) B Debu*g Mon*itor

o*d A Debug r*eyni*ta* w*ory bowedyt wolkipl. o conusla náde tomb - I boli* mo*nitis 200 W*h*y Gri wilay*

that are o botellet handled by the windrius bined with the help of the debug montou we are a able to your excution of goo to comands sent to I

the bennel &t debug monilla is a tool that helps to find and

redue the numby of bugs and defeile in a compile progen in oldes to make it at the way it should & qf the debugging monitor tooly a bug on and in

way any of Squeenmont ist will find I try for *refuxlub the hus*bloines W*ebist, will* allole as programmer to view sack string that way

within the bug an defect song and try to

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