Министерство науки и высшего образования Российской Федерации

Федеральное государственное бюджетное образовательное учреждение высшего образования «Пермский национальный исследовательский политехнический университет» (ПНИПУ)

Кафедра вычислительной математики и механики

**Лабораторная работа № 1**

**по дисциплине: «Интеллектуальные ИСИТ»**

Выполнила

студентка группы ИСТ-19-2б

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Проверил

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Описание БЗ в нотации IF-THEN

IF "Skol zyba \ plomb" = "no" AND "Videlenie gnoya" = "yes" AND "Temperatura" = ">37" AND "Ostraya bol" = "yes" THEN "Obratites ko vrachy"

IF "Otsytstvyet zyb" = "no" AND "Bespokoit zyb mydrosty" = "no" AND "Povishenaya hyvstvitelnoct" = "no" AND "Uazva vo rty" = "no" THEN "Osmotr ne trebuetsya"

IF "Bol v chelysty" = "yes" AND "Est karies " = "no" AND "Octraya bol" = "no" OR "Skol zyba \ plomb" = "yes" AND "Uazva vo rty" = "yes" AND "Krovotochit desna" = "no" AND "Nalet na zybah" = "no" OR "Krovotochit desna" = "yes" AND "Povishenaya hyvstvitelnoct" = "yes" AND "Nalet na zybah" = "yes" AND "Est karies " = "yes"

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IF "Skol zyba \ plomb" = "no" AND "Videlenie gnoya" = "yes" THEN "Nepriyatniy zapah iz rta" = "yes"

IF "Nepriyatniy zapah iz rta" = "yes" AND "Temperatura" = ">37" OR "Ostraya bol" = "yes" THEN "Svish na desne" = "yes"

IF "Svish na desne" = "yes" THEN "Obratites ko vrachy"

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IF "Otsytstvyet zyb" = "no" AND "Bespokoit zyb mydrosty" = "no" THEN "Vospalilas desna" = "no"

IF "Povishenaya hyvstvitelnoct" = "no" AND "Uazva vo rty" = "no" THEN "Temperatura" = "<37"

IF "Temperatura" = "<37" AND "Vospalilas desna" = "no" THEN "Svish na desne" = "no"

IF "Svish na desne" = "no" THEN "Osmotr ne trebuetsya"

IF "Bol v chelysty" = "yes" AND "Est karies " = "no" AND "Octraya bol" = "no" THEN "Bespokoit zyb mydrosty" = "yes"

IF"Skol zyba \ plomb" = "yes" AND "Uazva vo rty" = "yes" AND "Krovotochit desna" = "no" AND "Nalet na zybah" = "no" THEN "Bol v chelysty" = "no"

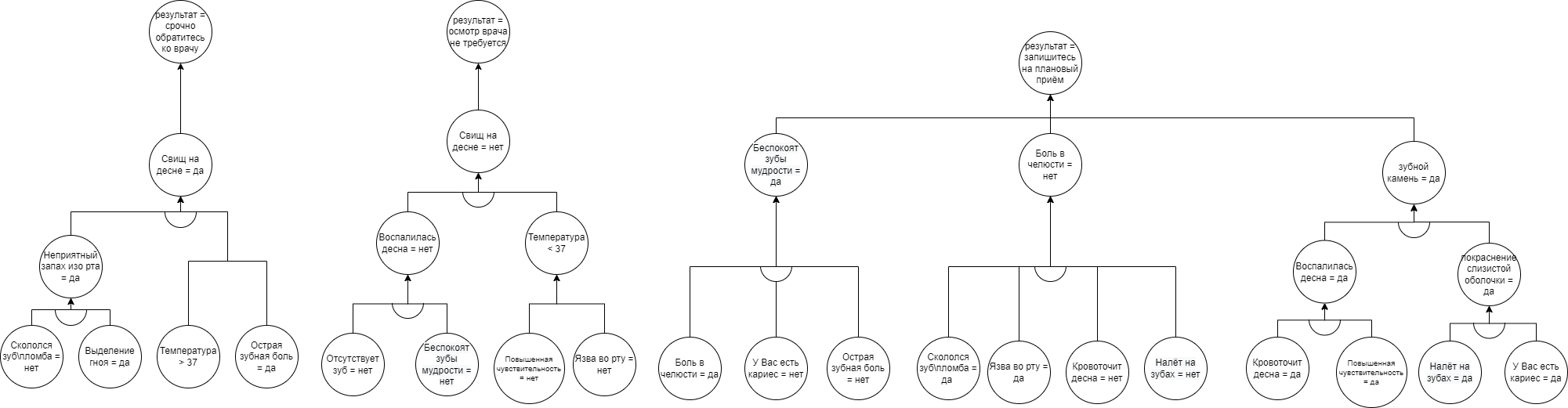
IF "Krovotochit desna" = "yes" AND "Povishenaya hyvstvitelnoct" = "yes" THEN "Vospalilas desna" = "yes"

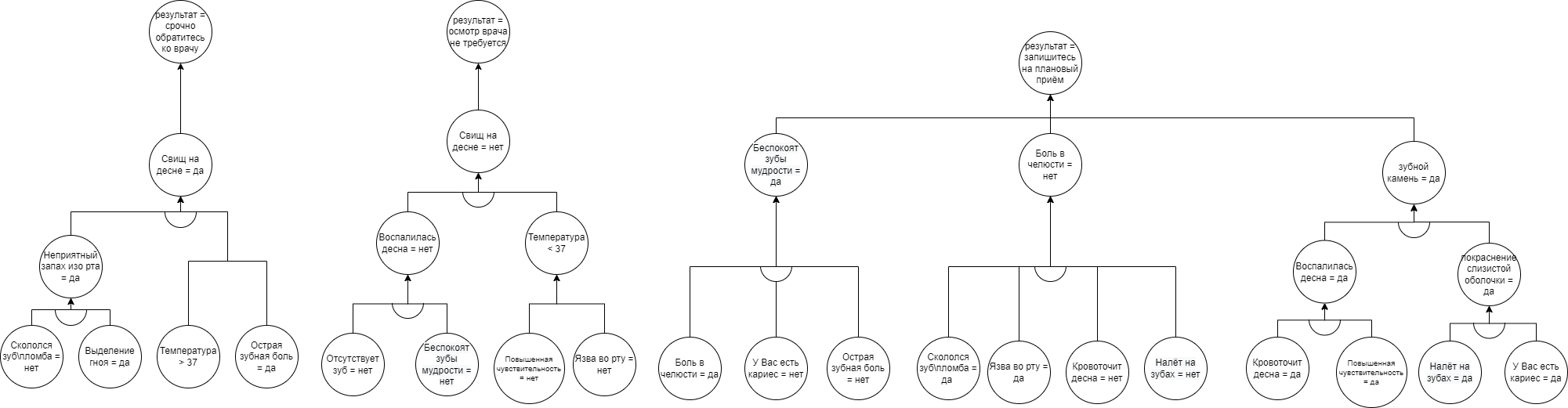
IF "Nalet na zybah" = "yes" AND "Est karies " = "yes" THEN "Pokrasnenie slizistoy" = "yes"

IF "Pokrasnenie slizistoy" = "yes" AND "Vospalilas desna" = "yes" THEN "Zybnoy kamen" = "yes"

IF "Zybnoy kamen" = "yes" OR "Bespokoit zyb mydrosty" = "yes" OR "Bol v chelysty" = "no" THEN "Zapsshites na planoviy priom"

Граф





Скрипт правил в системе CLIPS

(deffunction ask-value (?question)

(print ?question)

(bind ?answer (read))

?answer)

(deffunction ask-question (?question $?allowed-values)

(print ?question)

(bind ?answer (read))

(if (lexemep ?answer)

then (bind ?answer (lowcase ?answer)))

(while (not (member$ ?answer ?allowed-values)) do

(print ?question)

(bind ?answer (read))

(if (lexemep ?answer)

then (bind ?answer (lowcase ?answer))))

?answer )

(deffunction yes-or-no (?question)

(bind ?response (ask-question ?question yes no y n))

(if (or (eq ?response yes) (eq ?response y))

then yes

else no))

(defrule Zapsshites-na-planoviy-priom

(not (solution ?))

(Zybnoy-kamen yes)

=>

(assert (solution yes))

(print "Zapsshites-na-planoviy-priom" crlf) )

(defrule Zybnoy-kamen

(not (solution ?))

(not (Zybnoy-kamen ?))

(Pokrasnenie-slizistoy yes)

(Vospalilas-desna yes)

=>

(assert (Zybnoy-kamen yes)) )

(defrule Pokrasnenie-slizistoy

(not (solution ?))

(not (Pokrasnenie-slizistoy ?))

(Nalet-na-zybah yes)

(Est-karies yes)

=>

(assert (Pokrasnenie-slizistoy yes)) )

(defrule Vospalilas-desna

(not (solution ?))

(not (Vospalilas-desna ?))

(or

(Krovotochit-desna yes)

(Povishenaya-hyvstvitelnoct yes) )

=>

(assert (Vospalilas-desna yes)) )

(defrule Zapsshites-na-planoviy-priom

(not (solution ?))

(Bol-v-chelysty no)

=>

(assert (solution yes))

(print "Zapsshites-na-planoviy-priom" crlf) )

(defrule Bol-v-chelysty

(not (solution ?))

(not (Bol-v-chelysty ?))

(Krovotochit-desna no)

(or

(Nalet-na-zybah no)

(Uazva-vo-rty yes)

(Skol-zyba yes))

=>

(assert (Bespokoit-zyb-mydrosty yes)))

(defrule Nalet-na-zybah

(not (solution ?))

(not (Nalet-na-zybah ?))

=>

(assert (Nalet-na-zybah (yes-or-no "Nalet-na-zybah?: "))))

(defrule Krovotochit-desna

(not (solution ?))

(not (Krovotochit-desna ?))

=>

(assert (Krovotochit desna (yes-or-no "Krovotochit desna?: "))))

(defrule Uazva-vo-rty

(not (solution ?))

(not (Uazva-vo-rty ?))

=>

(assert (Uazva-vo-rty (yes-or-no "Uazva-vo-rty?: "))))

(defrule Skol-zyba

(not (solution ?))

(not (Skol-zyba ?))

=>

(assert (Skol-zyba (yes-or-no "Skol-zyba?: "))))

(defrule Zapsshites-na-planoviy-priom

(not (solution ?))

(Bespokoit-zyb-mydrosty yes)

=>

(assert (solution yes))

(print "Zapsshites-na-planoviy-priom" crlf))

(defrule Bespokoit-zyb-mydrosty

(not (solution ?))

(not (Bespokoit-zyb-mydrosty ?))

(Bol-v-chelysty yes)

(or

(Est-karies no)

(Ostraya-bol no))

=>

(assert (Bespokoit-zyb-mydrosty yes)))

(defrule Ostraya-bol

(not (solution ?))

(not (Ostraya-bol ?))

=>

(assert (Ostraya-bol (yes-or-no "Ostraya-bol?: "))))

(defrule Est-karies

(not (solution ?))

(not (Est-karies ?))

=>

(assert (Bespokoit-zyb-mydrosty (yes-or-no "Est-karies?: "))))

(defrule Bol-v-chelysty

(not (solution ?))

(not (Bol-v-chelysty ?))

=>

(assert (Bespokoit-zyb-mydrosty (yes-or-no "Bol-v-chelysty?: "))))

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(defrule Osmotr-ne-trebuetsya

(not (solution ?))

(Svish-na-desne no)

=>

(assert (solution yes))

(print "Osmotr-ne-trebuetsya" crlf))

(defrule Svish-na-desne

(not (solution ?))

( and

(Vospalilas-desna no)

(Temperatura no))

=>

(assert (Svish-na-desne no)))

(defrule Vospalilas-desna

(not (solution ?))

( and

(Otsytstvyet-zyb no)

(Bespokoit-zyb-mydrosty no))

=>

(assert (Vospalilas-desna no)))

(defrule Temperatura

(not (solution ?))

(Povishenaya-hyvstvitelnoct no)

(Uazva-vo-rty no)

(not (Temperatura ?))

=>

(assert (Temperatura no)))

(defrule Otsytstvyet-zyb

(not (solution ?))

(not (Otsytstvyet-zyb ?))

=>

(assert (Otsytstvyet-zyb (yes-or-no "Otsytstvyet-zyb?: "))))

(defrule Bespokoit-zyb-mydrosty

(not (solution ?))

(not (Bespokoit-zyb-mydrosty ?))

=>

(assert (Bespokoit-zyb-mydrosty (yes-or-no "Bespokoit-zyb-mydrosty?: "))))

(defrule Povishenaya-hyvstvitelnoct

(not (solution ?))

(not (Povishenaya-hyvstvitelnoct ?))

=>

(assert (Povishenaya-hyvstvitelnoct (yes-or-no "Povishenaya-hyvstvitelnoct?: "))))

(defrule Uazva-vo-rty

(not (solution ?))

(not (Uazva-vo-rty ?))

=>

(assert (Uazva-vo-rty (yes-or-no "Uazva-vo-rty?: "))))

(defrule Obratites-ko-vrachy

(not (solution ?))

(Svish-na-desne yes)

=>

(assert (solution yes))

(print "!Srochno-obratites-ko-vrachy" crlf))

(defrule Svish-na-desne

(not (solution ?))

(and

(Nepriyatniy-zapah-iz-rta yes)

( or

(Temperatura yes)

(Ostraya-bol yes)))

=>

(assert (Svish-na-desne yes))

(print "!Svish-na-desne" crlf))

(defrule Nepriyatniy-zapah-iz-rta

(not (solution ?))

( and

(Skol-zyba no)

(Videlenie-gnoya yes))

=>

(assert (Nepriyatniy-zapah-iz-rta yes)))

(defrule Skol-zyba

(not (solution ?))

(not (Skol-zyba ?))

(or (Temperatura yes)

(Ostraya-bol yes))

=>

(assert (Skol-zyba (yes-or-no "Skol-zyba?: "))))

(defrule Videlenie-gnoya

(not (solution ?))

(not (Videlenie-gnoya ?))

(or (Temperatura yes)

(Ostraya-bol yes))

=>

(assert (Videlenie-gnoya (yes-or-no "Videlenie-gnoya?: "))))

(defrule Temperatura

(not (solution ?))

(Ostraya-bol no)

(not (Temperatura ?))

(temp ?value)

=>

(if (> ?value 37.0)

then (assert (Temperatura yes))

else (assert (Temperatura no))))

(defrule temp

(not (solution ?))

(Ostraya-bol no)

(not (temp ?))

=>

(assert (temp (ask-value "Enter your temperature: "))))

(defrule Ostraya-bol

(not (solution ?))

(not (Ostraya-bol ?))

=>

(assert (Ostraya-bol (yes-or-no "Ostraya-bol?: "))))