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turtles-own[
  insured?
  checked?
  numberofedges
  payoff
]
globals[
  numberofinsued
  numberofnotinsured
  donewithinsured?
  donewithnotinsured?
]
to setup
  clear-all
  setup-turtles
  reset-ticks
  set numberofinsued 0
  set donewithinsured? false
  set donewithnotinsured? false
  setup-patches
end

to setup-turtles
  set-default-shape turtles "circle"

  crt num-nodes
  layout-circle turtles max-pxcor - 20
  ask turtles [
    set payoff 0
    set insured? false
    set checked? false
    set color red

    if (random-float 100.0 < (prob-insured)) [
      set color green
      set insured? true
      set numberofinsued (numberofinsued + 1)
    ]
  ]
  ask turtles [ set label who set label-color black]

end

to setup-patches
  ask patches [
    set pcolor white
  ]
end

to go
  if not donewithinsured? [
    add-edge
  ]

```

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tick
end

to add-edge
  let node1 one-of turtles with [not checked?]
  if node1 = nobody
  [
    display
    user-message "insured clique finished"
    stop
  ]
  ask node1[
    let node2 one-of turtles with [not link-neighbor?
node1 and (self != node1) and not checked?]

    ifelse node2 = nobody
    [
      set checked? true
      add-edge
    ]
    [
      let nolinkpayoff payoff
      ifelse insured?
      [
        ;node1 is insured
        ask node2
        [
          let nolinkpayoff2 payoff
          ifelse insured?
          [
            ;node2 and node1 insured
            let newpayoff1 (nolinkpayoff + (beta / 100) -
(insurancelink / 100 ))
            let newpayoff2 (nolinkpayoff2 + (beta / 100) -
(insurancelink / 100 ))
            if newpayoff1 > nolinkpayoff and newpayoff2
> nolinkpayoff2
            [
              ;add link
              create-link-with node1
              set payoff newpayoff2
              ask node1[
                set payoff newpayoff1
              ]
            ]
          ]
          ;done with adding link
        ]
      ]
      ;begin else
      ;node2 not insured
      let newpayoff1 (nolinkpayoff + (beta / 100) -
(risk / 100) - (insurancelink / 100 ))
      let newpayoff2 (nolinkpayoff2 + (beta / 100))

```

