yRace Token Contract

Introduction:

yRace token is a BEP20 compatible token present on the Binance Smart Chain.
The contract inherits methods from the BEP20 contract and Ownable contract.

Token configuration:

- Name : yRace
- Symbol : yRace
- Decimals : 18

Public Methods:

1. totalSupply():

The totalSupply method gives the total no. of yRace tokens.

2. balanceOf():

The balanceOf method returns the yRace token balance of a given user account.
Params:
- account: indicates the user address

Returns:
- number of yRace tokens.

3. allowance():

The allowance method checks the approval amount for particular spender
Params:
- owner: indicates the owner of tokens
- spender: indicates the spender for the owner`s tokens.

Returns:
- returns the allowance amount for given spender

4. approve():

The approve method sets the allowance amount for a particular spender of owner's tokens
Params:
- spender: indicates spender for the owner`s tokens
- amount: indicates the amount to be set as allowance

Returns:
- returns status of operation i.e true or false

5. increaseAllowance():

The increaseAllowance method increases the allowance amount for a particular spender of owner's tokens

Params:

- spender: indicates spender for the owner`s tokens
- addedValue: indicates the amount to be added to original allowance

Returns:

- returns status of operation i.e true or false

6. decreaseAllowance():

The decreaseAllowance method decreases the allowance amount for a particular spender of owner's tokens

Params:

- spender: indicates spender for the owner`s tokens
- subtractedValue: indicates the amount to be subtracted from original allowance

Returns:

- returns status of operation i.e true or false

7. transfer():

The transfer method allows to transfer a given amount of tokens to a specified user.

Params:

- recipient : indicates the receiver of token
- amount: indicates the transfer token amount

Returns:

- returns status of transfer i.e true or false

8. transferFrom():

The transferFrom method allows a user to transfer the approved tokens from owner's to another user's account.

Owner should have given allowance to the user using the approve() method.

Params:

- sender: indicates the tokens holder address from which tokens to get
- recipient: indicates the spender for tokens
- amount: indicates the amount of tokens to transfer

Returns:

- Returns the status of transferFrom operation i.e true or false

9. mint():

The mint method allows master contracts to mint new yRace tokens to a user account. Can only be called by the master contracts.

Params:

- _to : indicates the user account to which tokens to be mint
- _amount : indicates the amount of tokens to mint

10. setMaster():

The setMaster method allows to set yRaceMaster for the yRace token.

Can only be called by the owner of the token contract.

Params:

- _yRaceMaster : indicates address of master contract. Cannot be zero address.

yRaceSeedMaster Contract

Introduction:

yRaceSeedMaster contract is the master contract that holds the seed pool addresses and makes it possible for users to deposit seed pool tokens and earn yRace tokens in return after the staking period has ended. The staking period for the seed pools has a duration of 7 days. The users can stake multiple times for which their reward will be calculated accordingly and the entire reward sum will be given to the user when they harvest the tokens after the sale ends. Users can withdraw their staked tokens during the staking period, but their rewards will be locked until the sale ends. After the staking period ends, users can harvest their tokens and will be rewarded with yRace tokens on the basis of their amount staked and duration for which they were staked for.

yRaceSeedMaster constructor :

Constructor takes the address for yRace token contract, reward per block, start block, end block, seed pool amount, and address for fee.

Params:
- _yRace : indicates address of yRace token contract
- _rewardPerBlock : indicates number of yRace created per block
- _START_BLOCK: indicates start of staking period.
- _END_BLOCK: indicates end of staking period. Claiming can be started now.
- _seedPoolAmount: indicates seed pool amount
- _feeAddress: indicates the address where deposit fee from users is sent to.

Public methods :

1. add():
The add method is used to add a seed pool into the field.
A pool cannot be added twice using the add method.
Can only be called by the owner of the master contract
Params:
- _allocPoint : indicates allocation points for pool to be added
- _lpToken: indicates contract address of seed pool
- _depositFeeBP: indicates deposit fee for pool in basis points
- _withUpdate: If true, runs massUpdatePool()

2. set():

The set method is used to modify an already added seed pool.

Can be used to update pool's allocation points and/or deposit fee.

Can only be called by the owner of the master contract

Params:

- _pid : indicates pool ID of the added pool
- _allocPoint : indicates allocation points for pool to be updated
- _depositFeeBP: indicates deposit fee for pool in basis points
- _withUpdate: If true, runs massUpdatePool()

3. massUpdatePools():

The massUpdatePools method runs the updatePool() for all the added seed pools. This allows yRace tokens to be minted in accordance with the pools' last status and updates rewardPerShare and lastRewardBlock for the pools.

4. updatePool():

The updatePool method allows yRace tokens to be minted for the pool for which the method is called and also updates rewardPerShare and lastRewardBlock for the pool.

Params:

- _pid : indicates pool ID of the pool to be updated

5. deposit():

The deposit method is used to deposit/stake seed pool tokens from a user's account into the pool of given pool ID. Users can only deposit during the staking period, which is a duration bounded by START_BLOCK and END_BLOCK block numbers. Due to a 2% deposit fee , 2% of the amount to be staked is sent to the feeAddress and the remaining 98% amount is actually staked into the pool.

Params:

- _pid : indicates pool ID of pool in which amount will be deposited
- _amount : indicates number of tokens to be deposited
- _referrer: indicates address of the referrer, if any

6. withdraw():

The withdraw method is used to withdraw/unstake a given amount of LP pool tokens from the pool of given pool ID. Users are allowed to partially withdraw their tokens. A user can withdraw tokens during the staking period, but the reward tokens will be locked till the staking period ends.

Params:

- _pid : indicates pool ID of pool from which amount will be withdrawn
- _amount : indicates amount to be withdrawn from the pool

7. harvest():

The harvest method is used to withdraw/unstake all seed pool tokens and claim rewards from the pool of given pool ID. Users can harvest only after the end of the staking period,i.e., when END_BLOCK is reached. On harvesting, users receive their staked tokens as well as the yRace tokens as rewards. If the user was referred by a referrer, then the referrer receives 2% of the rewards of the user which are minted separately.

Params:
- _pid : indicates pool ID of pool from which tokens will be harvested

8. getMultiplier():

The getMultipleir method returns the reward multiplier over the 'from' and 'to' block.

Params:
- _from : indicates block number from which multiplier is to calculated
- _to : indicates block number till which multiplier is to calculated

Returns:
- returns the reward multiplier over the 'from' and 'to' block.

9. getPoolReward():

The getPoolReward method by making use of the getMultiplier method calculates and returns the amount of yRace to be minted for the pool for the duration of 'from' to 'to' block.

Params:
- _from : indicates block number from which multiplier is to calculated
- _to : indicates block number till which multiplier is to calculated
- _allocpoints : indicates allocation points of the pool

Returns:
- returns the amount of yRace to be minted over 'from' to 'to' block

10. getStakedAmount():

The getStakedAmount method returns the amount of tokens staked by a user in a particular pool.

Params:
- _pid : indicates pool Id of pool in which tokens are staked
- _user : indicates address of the user who staked tokens

Returns:
- returns the amount of tokens staked by a user in a particular pool.

11. pendingReward():

The pendingReward method returns the total number of yRace tokens generated as rewards for a particular user in a particular pool

Params:
- _pid : indicates pool Id of pool in which tokens are staked
- _user : indicates address of the user who staked tokens

Returns:
- returns the total number of yRace tokens generated for user in a pool

12. getReferral():
The getReferral method returns the referral address of a user.
Params:
- _user : indicates address of the user

Returns:
- returns the address of the referrer, if any

13. setFeeAddress():
The setFeeAddress method is used to set the address to which deposit fees from users are sent to. Can only be called by the current feeAddress address. feeAddress be set to zero address.
Params:
- _feeAddress : indicates pool Id of pool in which tokens are staked

Internal methods :

1. safeTrasferReward():
The safeTrasferReward method is used within the withdraw method to transfer a given amount of yRace tokens as rewards to a given user. The function avoids rounding errors that may cause the pool to not have enough yRace tokens.
Params:
- _to : indicates address of user to which yRace are to be transferred
- _amount : indicates amount of yRace tokens to be transferred

2. setReferral():
The setReferral method is used within the deposit method to set a referral address for a given user. The function has checks to avoid users to be referred by multiple referrers and to avoid users to refer to themselves.
Params:
- _user : indicates address of user
- _referrer : indicates referrer address

3. payReferralCommission():
The payReferralCommission method is used to pay referral commission to the referrer who referred this user. It is used within the withdraw method to transfer 2% of yRace token rewards of a user to its referrer.
Params:
- _user : indicates address of user
- _pending : indicates rewards of user

yRaceLPMaster Contract

Introduction:

yRaceLPMaster contract is the master contract that holds the LP pool addresses and makes it possible for users to deposit LP pool tokens and earn yRace tokens in return. The deposit and withdraw operations are a little different from that of the yRaceSeedMaster contract. Here, the users can deposit multiple times and everytime they deposit(or withdraw), except the first deposit, the yRace token rewards that are generated till that time are sent to users account instead of summing up. Users are able to partially withdraw their tokens too.

The farming period is divided into 4 stages where:
- In stage-1, yRace are emitted at 1 yRace/block for 7 days
- In stage-2, yRace are emitted at 0.5 yRace/block for 7 days
- In stage-3, yRace are emitted at 0.3 yRace/block for 7 days
- In stage-4, yRace are emitted at 0.1 yRace/block forever

yRaceLPMaster constructor :
Constructor takes the address for yRace token contract, reward per block, start block, end block, blocks per stage, and address for fee.
Params:
- _yRace : indicates address of yRace token contract
- _rewardPerBlock : indicates number of yRace created per block
- _START_BLOCK: indicates start of farming period.
- _BLOCK_PER_STAGE: indicates number of blocks per stage before stage-4
- _feeAddress: indicates address where deposit fee from users is sent to.
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The constructor also sets the block numbers for stages:
- STAGE2 = START_BLOCK + BLOCK_PER_STAGE
- STAGE3 = STAGE2 + BLOCK_PER_STAGE
- STAGE4 = STAGE3 + BLOCK_PER_STAGE

Public methods :

1. add():
The add method is used to add an LP pool into the field.
A pool cannot be added twice using the add method.
Can only be called by the owner of the master contract
Params:
- _allocPoint : indicates allocation points for pool to be added
- _lpToken: indicates contract address of LP pool
- _depositFeeBP: indicates deposit fee for pool in basis points
- _withUpdate: If true, runs massUpdatePool()

2. set():

The set method is used to modify an already added LP pool.
Can be used to update pool's allocation points and/or deposit fee.
Can only be called by the owner of the master contract
Params:
- _pid : indicates pool ID of the added pool
- _allocPoint : indicates allocation points for pool to be updated
- _depositFeeBP: indicates deposit fee for pool in basis points
- _withUpdate: If true, runs massUpdatePool()

3. massUpdatePools():

The massUpdatePools method runs the updatePool() for all the added LP pools.
This allows yRace tokens to be minted in accordance with the pools' last status and updates rewardPerShare and lastRewardBlock for the pools.

4. updatePool():

The updatePool method allows yRace tokens to be minted for the pool for which the method is called and also updates rewardPerShare and lastRewardBlock for the pool.
Params:
- _pid : indicates pool ID of the pool to be updated

5. deposit():

The deposit method is used to deposit/stake LP pool tokens from a user's account into the pool of given pool ID. When users deposit multiple times, the rewards that are generated between two deposits are sent to the user. Due to a 2% deposit fee , 2% of the amount to be staked is sent to the feeAddress and the remaining 98% amount is actually staked into the pool.
Params:
- _pid : indicates pool ID of pool in which amount will be deposited
- _amount : indicates number of tokens to be deposited
- _referrer: indicates address of the referrer, if any

6. withdraw():

The withdraw method is used to withdraw/unstake a given amount of LP pool tokens from the pool of given pool ID. Users can partially withdraw their tokens which was not possible in yRaceSeedMaster. On withdrawing, users receive their staked tokens as well as the yRace tokens as rewards. If the user was referred by a referrer, then the referrer receives 2% of the rewards of the user which are minted separately.
Params:
- _pid : indicates pool ID of pool from which amount will be withdrawn
- _amount : indicates amount to be withdrawn from the pool

7. emergencyWithdraw():

The emergencyWithdraw method is used to withdraw/unstake all of staked LP pool tokens from the pool of given pool ID. This must only be used in case of emergency, as it withdraws all tokens without giving out any reward to the user

Params:
- _pid : indicates pool ID of pool from which amount will be withdrawn

8. getMultiplier():

The getMultipleir method returns the reward multiplier over the 'from' and 'to' block.

Params:
- _from : indicates block number from which multiplier is to calculated
- _to : indicates block number till which multiplier is to calculated

Returns:
- returns the reward multiplier over the 'from' and 'to' block.

9. getStakedAmount():

The getStakedAmount method returns the amount of tokens staked by a user in a particular pool.

Params:
- _pid : indicates pool Id of pool in which tokens are staked
- _user : indicates address of the user who staked tokens

Returns:
- returns the amount of tokens staked by a user in a particular pool.

10. pendingReward():

The pendingReward method returns the total number of yRace tokens generated as rewards since the last deposit/withdrawal operation for a particular user in a particular pool

Params:
- _pid : indicates pool Id of pool in which tokens are staked
- _user : indicates address of the user who staked tokens

Returns:
- returns the total number of yRace tokens generated for user in a pool

11. getReferral():

The getReferral method returns the referral address of a user.

Params:
- _user : indicates address of the user

Returns:
- returns the address of the referrer, if any

12. updateReferralBonusBp():

The updateReferralBonusBp method is used to set a new referral bonus percentage in basis points. Can only be called by the contract owner.

Params:
- _newRefBonus : indicates new referral bonus in basis points

13. setFeeAddress():

The setFeeAddress method is used to set the address to which deposit fees from users are sent to. Can only be called by the current feeAddress address. feeAddress be set to zero address.

Params:
- _feeAddress : indicates pool Id of pool in which tokens are staked

Internal methods :

1 .safeTrasferReward():

The safeTrasferReward method is used within the withdraw method to transfer a given amount of yRace tokens as rewards to a given user. The function avoids rounding errors that may cause the pool to not have enough yRace tokens.

Params:
- _to : indicates address of user to which yRace are to be transferred
- _amount : indicates amount of yRace tokens to be transferred

2. setReferral():

The setReferral method is used within the deposit method to set a referral address for a given user. The function has checks to avoid users to be referred by multiple referrers and to avoid users to refer to themselves.

Params:
- _user : indicates address of user
- _referrer : indicates referrer address

3. payReferralCommission():

The payReferralCommission method is used to pay referral commission to the referrer who referred this user. It is used within the withdraw method to transfer 2% of yRace token rewards of a user to its referrer.

Params:
- _user : indicates address of user
- _pending : indicates rewards of user

Flow of sale

Contracts deployment :

The yRaceToken contract, yRaceSeedMaster and yRaceLPMaster contracts are deployed on the mainnet with proper constructor arguments.

Setting master contract in yRaceToken contract:

As soon as the contracts are deployed, the yRaceMaster is set to the yRaceSeedMaster contract using the setMaster() method of token contract.

Addition of seed pools in master contract:

As soon as the yRaceSeedMaster contract is deployed, decided seed pools are added to both the master contracts with proper allocation points and deposit fee values.

Staking period start and users start depositing:

The staking period begins when START_BLOCK is reached, and users can start depositing in their favorite seed pools. The deposit() will come into play at this time. Users can deposit multiple times during the sale period. Users can withdraw their staked tokens but their rewards will be locked till the sale ends.

Sale ends and master is switched to yRaceLPMaster:

The sale ends when the END_BLOCK is reached, and now massUpdatePool() must be run to generate remaining rewards for all pools, and yRaceMaster must now be set to yRaceLPMaster using setMaster() method of token contract.

Withdraw and reward claiming from seed pools :

When the sale ends, users can come after any time to withdraw their staked tokens and harvest their rewards from seed pools. At this point, the user receives the staked tokens along with the yRace tokens that were entitled to them as rewards.

Farming begins using yRaceLPMaster:

As soon as the staking period ends for seed pools and master is switched from yRaceSeedMaster to yRaceLPMaster, farming begins at the LP pools of the yRaceLPMaster contract.

Deposit and withdraw during farming period:

Users can now start staking LP tokens in the pools and they will also be able to withdraw it at any time later on and receive reward tokens. Users also have the option to partially withdraw some tokens while the rest are kept staked.